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MYASTHENIA GRAVIS

FOURTH REPORT: THE ONSET AND COURSE OF THE DISEASE

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Between April, 1932, and May, 1933, we have had at the Mayo Clinic twelve cases of myasthenia gravis. At the recent meeting of the Association of American Physicians I reported [1] in considerable detail the results we had obtained by treatment in these cases with ephedrine and glycine (the amino acid glycine, to be differentiated from the photographic developer glycin). This can be briefly summarized as follows: Ten of the patients definitely improved on treatment with glycine and ephedrine; of the ten who improved, all have been able to be up and about and, with the exception of two of the oldest (one woman, aged 79, and one man, aged 69), they have been able to carry on light work; four of the ten showed very marked improvement, one of whom received glycine alone without ephedrine; in two the only result was cessation in the downward progress of the disease (one of these patients recently died from causes not directly attributable to the myasthenic syndrome). In addition to our own cases, I have been indirectly in touch with about as many more, and most of these have also shown improvement. Remen [2] has reported one very striking example of improvement. In five of six cases in which we have tried to decrease or omit the glycine there was a gradual aggravation of the symptoms, which again improved with administration of sufficient glycine. Therefore, I believe one may feel confident that glycine is of definite benefit in myasthenia gravis.

To Harriet Edgeworth [3] belongs the credit for the discovery and demonstration on herself of the beneficial action of ephedrine in myasthenia gravis; we have also confirmed her observations. Thomas, Milhorat and Techner [4] discovered that in a certain type of case classified as progressive muscular dystrophy the patient could be benefited by the use of glycine. Following up this point I tried the effect of glycine in the treatment of myasthenia gravis; my first report [5] on the beneficial effect in this disease was made practically simultaneously and entirely independently of a similar report by Remen in Germany.

Myasthenia gravis is by no means as rare a disease as is generally supposed, as is evidenced by the fact that between May 1 and June 10 of this year we have had eight new cases of which only four had been recognized, and the patients came to us as a result of our previous reports [5] on the subject. It is, of course, too early to evaluate the effect of treatment in this recent group. A report, however, of the onset and course of the combined group of twenty cases will, I think, prove timely and will help in the more prompt recognition of the disease. One does not need to emphasize the importance of an early diagnosis in order that the patient may be placed as soon as possible on the appropriate regimen and treatment and instructed how to avoid complications and how to regulate his life so that physical exertion will be decreased to an amount which will not tax the reserves built up by treatment with glycine, or ephedrine, or both.

In table 1 are given the duration of symptoms before diagnosis was made and the total duration of the disease up to June of this year, as well as the order in which the symptoms of the disease developed. Any such tabulation can present only an approximate picture of the course of the disease, which, among the patients who have had a long history, was interspersed with periods of more or less remission and occasional periods of what appeared to be complete intermission.

It will be noted that in seven of the twenty cases (35 per cent) there was a history of an acute infection shortly before the onset of the symptoms characteristic of myasthenia gravis. Thirty-five per cent must certainly be considered a large number to have happened to have an unrelated infection of the upper air passages or other streptococcic infection. On the other hand, it must not be overlooked that the remainder gave no such history, although possibly in the cases of longer duration a mild infection might have been forgotten. Careful study by Dr. Robertson of the muscles obtained at necropsy in two of these twenty cases, as well as the reports in the literature, suggests very strongly that the underlying cause is some type of infecting organism which elects to localize in the muscles in some manner corresponding to localization in joints in chronic arthritis. This suggestion, by no means a new one, is merely called to attention for the purpose of future observation and study.

From the Section on Clinical Metabolism, the Mayo Clinic.

Read before the Section on Pharmacology and Therapeutics at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 15, 1933.

1. Boothby, W. M.: Myasthenia Gravis: Third Report: The Effect of Treatment with Glycine and Ephedrine, Tr. A. Am. Physicians; Ann. Int. Med., to be published.

2. Remen, L.: Zur Pathogenese und Therapie der Myasthenia gravis pseudoparalytica, Deutsch. Ztschr. f. Nervenh. **128:** 66-78, 1932.

3. Edgeworth, Harriet: A Report of Progress on the Use of Ephedrine in a Case of Myasthenia Gravis, J. A. M. A. **94:** 1156 (April 12) 1930; The Effect of Ephedrine in the Treatment of Myasthenia Gravis: Second Report, ibid. **100:** 1401 (May 6) 1933.

4. Milhorat, A. T.; Techner, Fritz, and Thomas, Karl: Significance of Creatine in Progressive Muscular Dystrophy and Treatment of This Disease with Glycine, Proc. Soc. Exper. Biol. & Med. **29:** 609-611 (Feb.) 1932. Thomas, Karl; Milhorat, A. T., and Techner, Fritz: Untersuchungen über die Herkunft des Kreatins: Ein Beitrag zur Behandlung progressiver Muskelatrophein mit Glykokoll, Ztschr. f. physiol. Chem. **205:** 93-98, 1932.

5. Boothby, W. M.: Myasthenia Gravis: A Preliminary Report on the Effect of Treatment with Glycine, Proc. Staff Meet., Mayo Clin. **7:** 557-562 (Sept. 28) 1932. Boothby, W. M.; Adams, Mildred; Power, M. H.; Edgeworth, Harriet; Moersch, F. P.; Woltman, H. W., and Wilder, R. M.: Myasthenia Gravis: Second Report on the Effect of Treatment with Glycine, ibid. **7:** 737-756 (Dec. 28) 1932.

The order of the onset of symptoms is, with minor variation, consistent and characteristic. First, the patient complains of fatigability or of becoming unduly tired and hardly feels able to carry through his ordinary daily routine; as fatigue develops there is frequently blurring of vision due to diplopia, which sends the patient to the ophthalmologist or optician for glasses. At this time there may be transient ptosis of one or both eyelids and also, sometimes, weakness of the muscles of expression; if the onset of these symptoms has been sudden, the condition has been erroneously diagnosed in some cases as a slight "stroke." Occasionally, after a few weeks, the diplopia and ptosis may clear up and remain absent for months or even years. More frequently, weakness of the muscles of the tongue and pharynx develop in a short time or may even precede the diplopia. The first sign of weakness of the muscles of phonation is usually noticed as a phenomenon of fatigue after prolonged talking, such as in public speaking or in reading aloud; as fatigue develops, the pronunciation gradually becomes indistinct and slurred and may possess a nasal twang. Weakness of the muscles of deglutition is first noticed as difficulty or fatigue on chewing meat or in swallowing; as a consequence, the patient tends to select a semisoft diet; as the weakness progresses, there is regurgitation through the nose; when chewing and swallowing become more difficult the whole picture of the disease rapidly becomes more marked, accelerated in part by the weakness secondary to insufficient nourishment; loss of weight may be very rapid. In an actively progressing stage of the disease, the patient may be in marked negative nitrogen balance even on a liberal, semisolid diet. At such a time, the feeding of a high calory, high vitamin diet, in liquid form, through a Rehfuss tube introduced through the nose becomes a necessity, first, to afford sufficient nourishment and, secondly, to prevent choking and pneumonia from inhalation of food. In an occasional case this method of feeding must be maintained for months and is to be preferred to gastrostomy. On account of the remitting character of the disease, even without treatment, and the marked improvement following use of glycine and ephedrine, one should not allow the patient to become discouraged even if the effect of treatment for several months does no more than to stop the progressive course of the disease.

The third group of muscles to become involved is composed of those of the extremities. Sometimes, however, the arms or legs may be the first to be noticeably involved. In one of our cases the arms and hands were first involved, and in another the legs, and the muscles of phonation and deglutition were not involved until later. In some the weakness of the arms and legs becomes so great that the patients can walk only very short distances without falling down and then can rise up only after a period of rest. The muscles of the neck are often involved to the extent that the patient has to support his head and, if lying down, to move his head with his hands by grasping his hair. The muscular weakness of some patients is so extreme that they may be unable to turn over in bed, to raise their arms to their heads or, in fact, to make any appreciable movement, and the intercostal muscles even may become involved. There is both pathologic and clinical evidence that occasionally the heart muscle is affected by the disease. In one case, dyspnea was produced by the extreme weakness of the pharyngeal and laryngeal muscles, which permitted the epiglottis to fall backward and to obstruct the passage of air into the larynx like a flap valve; this necessitated, first, tracheotomy and then artificial respiration for ten days in the Drinker respirator, which was followed by improvement to the extent that the patient was up and about his room. He later died from causes not directly attributable to the myasthenic syndrome.

Exercise or use of the muscles involved always produces rapidly increasing fatigue. For example, a patient may be able to walk half a block without much difficulty and then rapidly becomes weak and may fall. The patients are almost invariably better after a short rest, and especially in the morning. However, an occa-

TABLE 1.—*Myasthenia Gravis: Twenty Cases*

Case	Age, Years	Sex	Duration Before Diagnosis Made, Years	Infection at Onset	Duration to June, 1933, Years	Order of Onset of Symptoms, Nature and Region Affected
1	56	♂	4	.....	8	1, Talking and swallowing with regurgitation; 2, ptosis; 3, mucus
2	17	♀	5	.....	6	1, Weakness of legs (falling); 2, muscles of face; 3, ptosis; 4, speech and deglutition
3	36	♀	3	.....	4	1, Change in voice (nasal twang); 2, fatigue in talking and swallowing; 3, diplopia
4	34	♀	2	Erysipelas	4	1, Numbness of lips and tongue; 2, speech; 3, swallowing with regurgitation; 4, diplopia; 5, mucus; 6, fatigability
5	37	♂	4 months	.....	1	1, Arms and hands; 2, legs; 3, ptosis; 4, swallowing
6	34	♂	2 weeks	.....	1	1, Arms and legs; 2, diplopia and swallowing
7	56	♂	4	.....	5	1, Ptosis; 2, diplopia; 3, fatigability; 4, speaking and swallowing; 5, extremities
8	69+	♂	½	.....	1	1, Weakness of neck; 2, speech and swallowing
9	37	♀	6	Pneumonia (influenza)	14	1, General weakness after influenza; in bed; 3 months of partial remission
			3	Sore throat	11	1, Fatigability; 2, ptosis; 3, speech; 4, swallowing; 5, speech; 6, extremities
10	47	♂	1 month	.....	½ (died)	1, Fatigability, 2, diplopia; 3, ptosis; 4, swallowing; 5, speech; 6, extremities
11	70	♀	2	.....	2½	1, Ptosis and weakness masseter (paralytic stroke); 2, swallowing; 3, speech; 4, extremities
12	24	♂	8	.....	9	1, Ptosis, diplopia, remission
			5	.....	6	1, Ptosis, diplopia; 2, left side of jaw; 3, right side of jaw; 4, right side of lower jaw; 5, throat and swallowing; 6, forehead; 7, tongue and lips (speech); 8, left arm; 9, right arm; 10, neck; 11, legs; 12, intercostals
13	40	♂	15	Influenza	15	1, Diplopia, recovery
			2	.....	2	1, Diplopia; 2, legs; 3, speech; 4, swallowing
14	41	♀	2	.....	4	1, Ptosis; 2, fatigue on talking; 3, swallowing; 4, extremities
15	28	♂	3	.....	3	1, Fatigue on talking, chewing, smiling, swallowing; 2, arms and legs; 3, ptosis
16	33	♂	4	Streptococcic infection of tongue	4	1, Fatigability; 2, ptosis and diplopia; 3, extremities; 4, swallowing
17	42	♂	1 month	Rhinopharyngitis	2 months	1, Diplopia, masseter, tongue (chewing), swallowing; 2, arms and legs
18	74	♂	1 month	.....	1 month (died)	1, A snap (?) in head; 2, nausea; 3, talking; 4, swallowing; 5, general weakness; 6, respiratory muscles
19	55	♂	3	Influenza	3	1, Vocal cord; 2, tongue and articulating; 3, swallowing; 4, arms and legs
20	21	♀	1	Rhinopharyngitis	2	1, Nasal twang; 2, speech; 3, swallowing; 4, extremities

sional patient will have considerable difficulty in dressing in the morning and then be in fairly good condition during the forenoon, with a marked period of depression around 4 or 5 p. m. The so-called myasthenic response of the muscle to electrical stimulation is by no means an invariable phenomenon.

As pointed out in the foregoing and in the table, the course of the disease is usually gradual, with involvement of first one group of muscles and then of another, with irregular periods of remission or intermission. On the other hand, some patients present a very fulminating type of the disease, with rapid and progressive involvement of various groups of muscles, which may end in death within four or five weeks after onset of the disease, from profound weakness, inanition and dehydration, unless proper steps are taken in time to prevent the latter complications.

On all of our patients we have carried out extensive investigation of the chemistry of the urine and blood. The details of these studies will be reported elsewhere, as they are of more interest to the student of intermediary metabolism than to the clinician. The practical results, however, may be briefly summarized as follows:

1. The blood shows no characteristic or consistent change, in either the nitrogenous or the inorganic constituents, which is of value in the diagnosis of the disease.

TABLE 2.—*Amount of Creatine Nitrogen in the Urine*

Males			Females		
	Amount of Creatine Nitrogen Daily			Amount of Creatine Nitrogen Daily	
Case*	Before Taking Glycine, Mg.	Maximum While Taking Glycine, Mg.	Case	Before Taking Glycine, Mg.	Maximum While Taking Glycine, Mg.
1	30	110	2	0	110
5	40	120	3	30	80
6	10	250	4	10	60
7	50	80	9	170	230
8	40	100	14	20	170
10	20	40			
12	40	430			
13	20	190			
15	20	110			
16	10	60			
17	20	40			
19	20	40			

* Numbers correspond with those of table 1.

† Quantities of 20 mg. of creatine nitrogen or less are open to question, but as these values were obtained for several days they probably indicate that at least traces were present.

2. The urine shows no abnormal constituent other than creatine. In table 2 are listed the average amounts of creatine nitrogen excreted daily, before administration of glycine was started; a few of the patients had been receiving ephedrine for a varying length of time when the urine was first examined by us. The maximal amount of creatine nitrogen excreted after the patient had been receiving glycine for from two to six weeks or more is also given. As can be seen, administration of glycine causes a definite and sometimes a very marked increase in the creatine nitrogen. Later, a decrease in the amount excreted sometimes occurs, which may or may not be coincident with clinical improvement. The reaction is quite similar in both men and women. This increase in excretion of creatine following administration of glycine is not confined to patients with myasthenia gravis, for we obtained it in three normal women who were used as controls and also in a few other individuals who did not have myasthenia gravis.

SUMMARY

The diagnosis of myasthenia gravis in the fully developed case is easy and is based on the history and the progressive development of the characteristic type of weakness outlined. True muscular paralysis from other causes, however, must be ruled out by detailed neurologic examination. Probably the greatest difficulty arises in the slowly developing case, in knowing just when, in the progress of the disease, one is justified in making a positive diagnosis of early myasthenia gravis as opposed to some neurotic or functional disturbance. Unfortunately, laboratory data are of little practical help in arriving at the correct diagnosis, although the course of excretion of creatine is of considerable value in following the progress of treatment. Both ephedrine and glycine are valuable drugs in the treatment of the disease, and by their proper use a large proportion of patients with myasthenia gravis is benefited; many are so greatly helped that they can continue to work.

THE EFFECTS OF GLYCINE (GLYCOCOLL) IN MUSCULAR DYSTROPHY

WITH ESPECIAL REFERENCE TO CHANGES IN STRUCTURE AND COMPOSITION OF VOLUNTARY MUSCLE

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The report of the remarkable therapeutic action of glycine [1] in progressive muscular dystrophy by Thomas, Milhorat and Techner [2] has been followed by widespread trial of this substance in the dystrophies and in other diseases primarily involving the muscles. Beneficial effects in muscular dystrophy have been substantiated by Kostakow and Slauck,[3] Chanutin, Butt and Royster,[4] and Beard and Tripoli.[5] Boothby [6] and Remen [7] have shown that glycine is of value also in the treatment of myasthenia gravis. It would appear, however, that the treatment of muscular dystrophy has not been successful in many instances and that certain patients suffering from this disease do not respond to glycine therapy. This is evident from the reports of Boothby,[6] Milhorat,[8] and Brand and Harris.[9] Aside

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1. "Glycocoll, Merck," contributed by Merck and Company through the courtesy of Mr. R. E. Gruber, has been used in this study.
2. Thomas, K.; Milhorat, A. T., and Techner, F.: Ztschr. f. physiol. Chem. **205:** 93, 1932; **214:** 121, 1933.
3. Kostakow, S., and Slauck, A.: Deutsche med. Wchnschr. **59:** 169 (Feb. 3) 1933; Deutsches Arch. f. klin. Med. **175:** 25, 302, 1933.
4. Chanutin, Alfred; Butt, H. R., and Royster, L. T.: J. Biol. Chem. **100:** xxvi (May) 1933.
5. Beard, H. H., and Tripoli, C. J.: J. Biol. Chem. **100:** xiv (May) 1933.
6. Boothby, W. M.: Proc. Staff Meet., Mayo Clin. **7:** 557 (Sept. 28) 1932.
7. Remen, L.: Deutsche Ztschr. f. Nervenh. **128:** 66, 1932.
8. Milhorat, A. T.: Deutsches Arch. f. klin. Med. **174:** 487 (Jan. 12) 1933.
9. Brand, Erwin, and Harris, M. M.: J. Biol. Chem. **100:** xx (May) 1933; Metabolic and Therapeutic Studies in the Myopathies, J. A. M. A. **101:** 1047 (Sept. 30) 1933. Dr. Leonard G. Rowntree has brought to our attention three additional cases of progressive muscular dystrophy in which glycine failed to bring about improvement, as well as one case of myasthenia gravis that responded favorably to the administration of glycine.

from the suggestion of the latter that glycine may be effective only in certain forms of muscular dystrophy, there is at present no explanation for the apparent failure in these instances. Conclusions in regard to the efficacy of the treatment have been based largely on the clinical observation of the changes in the physical function of the muscles. As slight changes in muscle function are not easily detected, it is to be expected that differences of opinion would arise in regard to the effects of the therapy.

To avoid this difficulty we have utilized in the present study, in addition to the usual physical procedures for estimating therapeutic action, the more objective method of chemical and microscopic examination of the muscle. A great incentive to the use of this method of approach was the opportunity it offered for learning how the glycine acted on the muscle. In the evaluation of results of the treatment, information obtained from the biopsies of the muscles has been considered in connection with the clinical response and also in relation to the excretion of creatine and creatinine in the urine.

The results obtained by the use of glycine therapy in eight cases of progressive muscular dystrophy and in one case of generalized chronic myositis are reported.[10] Of the dystrophies, six conformed in all respects to the characteristic clinical picture (five showed a familial history of the disease), while in two others the diagnosis was not as clearly established. The muscles of the latter showed essentially the same histologic picture as the true dystrophies (cases 2 and 3). The group included both early and advanced stages of the disease.

The diagnosis of chronic myositis was made in patient 9, a woman, aged 65, whose case from the clinical standpoint could be readily included as one of muscular dystrophy and was at first so considered. However, biopsy of the muscles indicated the existence of a marked chronic inflammation with cellular exudate and fibrous tissue proliferation, while the muscle fibers were comparatively normal. The usual symptoms of muscle inflammation were lacking.

Besides glycine, certain auxiliary and supplementary measures have been utilized in the treatment of these conditions. High protein diets, gelatin, beef extract and ephedrine have been tested, and a consideration of the effects of these substances is included.

EXPERIMENTAL

The general procedure employed in the study of this group of patients is outlined in the protocols. The excretion of creatine and creatinine was measured before and at frequent intervals after treatment, during periods when the patients received house diets from which meat and meat soups had been omitted. The method of Folin [11] was used.

Specimens of muscle were taken from the vastus externus.[12] This muscle seemed to be fairly representative of the condition of the larger voluntary muscles, although others were often more severely affected. Post-treatment biopsies were taken from the same portion of the muscle as the first specimens. In two instances, however, the corresponding muscle of the opposite leg was utilized for the second biopsies, and third biopsies were performed later, close to the original incision, to verify the results. Nitrous oxide anesthesia was used except in a few cases in which procaine hydrochloride was substituted. Precautions were taken to prevent the anesthetic solution from entering the muscle proper. The fascia lata was exposed and divided without stimulation of the muscle. A specimen was then removed as rapidly as possible and divided into two portions of about 0.5 Gm. each. One of these was weighed quickly and immediately ground with sand in a chilled mortar containing cold 5 per cent trichloracetic acid. The filtrate obtained was used for analysis of the muscle extractives.

The remainder of this portion of the muscle was utilized for the determination of water, ether extract (extraction of the dried specimen in a Soxhlet extractor for seventy-two hours), and total nitrogen (by the macro Kjeldahl test on the fat free residue). A second, separate specimen was taken from the exposed muscle for the histologic studies. The possibility of misinterpretation due to lack of uniformity in the diseased muscle was thus lessened to some extent. Chemical and histologic analyses have agreed in eighteen of the twenty biopsies in which both were done.

RESULTS

Although glycine therapy, so far as clinical improvement is concerned, has proved to be of rather limited value in the patients with the muscular dystrophy syndrome, there is, nevertheless, evidence for believing that the treatment has had beneficial effects. These are more noticeable in the children than in the adults. One of the children (patient 4) after three months of treatment with glycine regained the ability to stand for brief intervals when support was afforded. In another child (patient 6), after a similar period, contractures of the hamstring muscles were ameliorated. Patient 5 showed little change, although the disease apparently has made no further progress. It is uncertain whether improvement has occurred in two children who showed early symptoms of muscular dystrophy. While the latter have been treated only fifteen weeks, Milhorat's patients responded favorably in less than this time. Evidence of improved muscular function is even less tangible in the adult patients, and no specific instance can be cited in which there has been undoubted gain in the ability to perform muscular movements that can be ascribed to administration of glycine. Two of the adult patients (patients 1 and 2), however, assert that they have gained strength and that fatigue occurs less readily than before treatment. They testify also that certain operations, such as dressing and various minor movements, are accomplished with less effort and that an erect sitting position now can be maintained for longer periods than previously. It will be seen that the assertions of these patients are supported to some extent by data provided by the muscle biopsies. A third adult (patient 3) has failed to maintain the improvement that appeared during the early period of treatment.

While the gains in muscle function did not fulfil expectations, it should be mentioned that administration of glycine has been of considerable benefit in other ways. Among all the patients, but in the children particularly, the mental and physical activity has been stimulated as a result of the treatment. No ill effects have been noted as a consequence of glycine therapy. Kidney function, as measured by urea clearance determinations, has remained unchanged following long periods of glycine administration.

Glycine proved to be of decided value in the case of generalized chronic myositis that was discovered in

10. We are indebted to the staffs of the Departments of Neurology and of Pediatrics for permission to study these patients and for assistance.

11. Folin, Otto: J. Biol. Chem. **17**: 469, 1914.

12. The authors are indebted to Dr. Philip Ehrig for performing the biopsies.

connection with the studies on muscular dystrophy. In this instance, several weeks of glycine feeding enabled the patient to rise to a sitting position without help, whereas powerful assistance had previously been required. The ability to walk improved appreciably.

All the patients exhibited creatinuria to a pronounced degree, which was further augmented, with only two exceptions, by the administration of glycine. In a few instances the creatinine excretion also increased. Both the creatine and the creatinine output remained comparatively stable over long periods with a constant level of glycine feeding. The gradual inversion of the creatine: creatinine ratio reported by Milhorat [8] and by Kostakow and Slauck [9] has not been observed in two cases in which creatine excretion was studied under controlled conditions for long periods. In chronic myositis, glycine therapy caused the excretion of creatine to increase considerably, while a similar observation has been made in an emaciated cachectic female who showed extreme wasting of the muscles, caused apparently by starvation. It appears, therefore, that increased excretion of creatine in the urine after glycine occurs not only in progressive muscular dystrophy but in a variety of other conditions in which the muscles may be involved.

Twenty-one biopsies of muscles have been made in thirteen cases, although the results for only nine of the latter are discussed here. The extensive degeneration of the voluntary muscles in progressive muscular dystrophy has been described by Erb,[13] Lorenz [14] and others, and our observations are in accord with those reported by these workers. A loss of substance and of structure with replacement by fat and fibro-areolar tissue was to be seen in varying degrees in all cases, dependent roughly on the duration of the disease. Both hypertrophied and atrophied fibers commonly were present in the same muscle. Distortion, fraying, vacuolization, and fission of fibers constituted other changes of importance. The internal structure of the fibers at times was obliterated, and in its place could be seen only homogeneous, unevenly stained material. The quantity of myohemoglobin present in the remaining fibers appeared to be reduced, although individual variation in this respect was considerable. Visible nuclei were increased in number, while the distribution in the fibers was abnormal.

Analyses of the specimens of muscle revealed that characteristic muscle constituents were greatly reduced in concentration, in some instances to small fractions of normal values. In advanced cases the muscles contained only from 5 to 10 per cent of the normal concentrations. Earlier cases, with but partial functional incapacity, contained as much as 50 per cent of normal. Most conspicuous was the deficiency of creatine, which appeared to be diminished to a greater extent than the other substance that have been determined. Exceptions were encountered in the two cases of longest duration, in which the loss of creatine from the muscle had been in approximately the same proportion as the loss of other water soluble extractives. In all the patients, the widespread infiltration of fat and the substitution of connective tissue (estimated by staining reactions) for muscle fibers explained in large part the greatly reduced concentrations of the substances concerned with the normal activity of the muscle. These factors alone, however, were not sufficient to account for the low values observed, and it is probable that a marked deficiency of water soluble extractives and other characteristic muscle components existed in the surviving muscle fibers. A relatively high total nitrogen in several of the more badly degenerated muscles could be traced to the substitution of fibro-areolar tissue.

Muscle biopsies have been performed after periods of treatment with glycine in six cases, and chemical and histologic data are available for comparison with similar data from pretreatment specimens. Of the eight post-treatment specimens that were subjected to histologic examination, six were of a better quality than the preceding specimens, one was of a poorer quality, and one showed no appreciable changes. An identical distribution was encountered in the results of the chemical analyses. A case in which retrograde changes were suggested by chemical analysis has been classified as showing no gain or possibly slight gain histologically. Actually, in this instance in the later specimen, lowered concentrations of certain extractives were counterbalanced by a higher fat content; hence there was probably no actual change of fiber quality. In the remaining case in which the results of the biopsies were doubtful, the microscopic examination indicated a slight progression of the degeneration, while the chemical changes on the contrary pointed toward a moderate degree of recovery. Possibly the discrepancy may be explained by the short period of treatment in this instance (eleven weeks), since it is not improbable that chemical changes would precede morphologic alterations. One may summarize the evidence provided by the biopsies by stating that in four cases improvement was indicated, while in two others, because of the conflicting data or lack of significant differences, there was no definitely established trend. Additional post-treatment biopsies in two cases, seven months after the last preceding biopsies, yielded results substantiating those obtained previously from the same case.

Histologically, the post-treatment specimens differed from those taken before glycine was administered by the greater uniformity in fiber size, better staining reactions, and decreased numbers of visible nuclei. Cross striations and longitudinal fibrils were to be seen more clearly. The fat content of the muscle was greatly decreased in most cases, and more myohemoglobin appeared to be present. Photomicrographs showing representative muscle fibers of one of the patients before (fig. 1) and after (fig. 2) treatment illustrate certain of the changes that have been described.

The muscle specimens taken after treatment showed quantitative differences in chemical composition, which likewise suggested regeneration. The restoration of the muscle appeared to be of a general nature, involving all the muscle constituents that have been studied. Total nitrogen was increased, particularly in the more advanced cases. Creatine concentrations were from two to four times the original figures, and the total acid soluble phosphorus showed like differences. Since the gains in creatine concentration did not exceed the similar gains in other water soluble extractives, the relative deficiency of this substance in the muscle remained uncorrected. Diminution of the proportion of fat in the muscle following the treatment was insufficient to account for the increased concentrations of extractives that have been noted. However, the composition of the muscles of the muscular dystrophy cases was still far from normal after varying periods of treatment, despite the gains that apparently had occurred. Owing to the lack of space for adequate dis-

13. Erb, W. H.: Gesammelte Abhandlungen, Leipzig, F. C. W. Vogel **1**, 1910.
14. Lorenz, H. A.: Die Muskelerkrankungen, in Spezielle pathologie und Therapie (Nothnagel) **11**, part 3, 1904.

cussion, the chemical data from these and other cases will be presented elsewhere in detail.

The absence of unmistakable evidence of improvement in the function of the muscles of these patients led to the trial of several supplementary measures. These included high protein diets, gelatin, beef extract and, in one case, ephedrine. Details are described in the protocols. It is believed that the high protein diets (2 Gm. per kilogram for adults, from 3 to 4 Gm. per kilogram for children, principally in the form of meat) were of definite benefit. Somewhat greater progress (as suggested by muscle biopsy) was made in case 1 during the second treatment period, coincident with the use of such a diet. High protein diets, beef extract and gelatin, singly or in combination, appeared to be ineffective in the quantities given when glycine was omitted.

As a consequence of the successful use of ephedrine in myasthenia gravis by Edgeworth,[15] this drug has been tested in conjunction with glycine in case 3, which

Fig. 1 (case 4).—Control muscle biopsy, Jan. 10, 1933, illustrating a giant fiber that presents almost complete loss of internal structure, vague suggestion of cross-striation remaining, rather an extreme example. Opposed to this are minute fibers embedded in a fibrous matrix, with occasional normal fibers interspersed. Slightly reduced from a photomicrograph with a magnification of 1,021 diameters.

failed to respond clinically when the latter was given alone. While the general condition of the patient was improved, there has been no convincing gain in muscular function. Administration of ephedrine doubled the excretion of creatine, which had already been augmented considerably by the feeding of glycine. Muscle sensations of the nature of those described by Thomas, Milhorat and Techner [2] were pronounced in this patient and were concurrent with periods of excessive creatine excretion after glycine and again after ephedrine.

COMMENT

The biopsies as a whole provide considerable evidence for regeneration of muscle and practically none that indicates further deterioration. Although based on a small number of observations, the distribution of the results favors the view that improvement in the voluntary muscles actually had occurred. The use of muscle biopsies for evaluating results of treatment may be subject to errors arising from a lack of uniformity in the muscle, and undoubtedly this factor is responsible for certain discrepancies that have been observed. However, information obtained by performing additional biopsies after further periods of treatment confirmed earlier observations. Clinically, the improvement in the patients suffering from progressive muscular dystrophy has not progressed to the extent that might be expected on the basis of the indicated change in the composition of the muscle. Yet, in view of the extensive deterioration of the voluntary muscles (all of the post-treatment biopsies were done in advanced cases) and the fact that marked abnormality persisted even after extended periods of treatment, a rapid clinical response to glycine therapy was not to be expected. It is believed that the evidence of improvement obtained by direct examination of the muscle is, therefore, a more sensitive guide to the earlier effects of glycine therapy than are measurements of muscle function or creatine excretion.

The results are sufficiently indicative of improvement to suggest continuation of glycine therapy. It is hoped that the present studies may be extended over a sufficient period of time to permit a statement of definite conclusions in regard to the effects of prolonged administration of glycine and of the supplementary substances that have been employed. Occupational therapy has been utilized during recent months as an adjunct to the dietary treatment.[16] The use of this or of some other form of systematic controlled exercise is strongly advocated.

SUMMARY

The effects of glycine feeding have been studied in nine cases of progressive muscular dystrophy for periods up to fourteen months. Little tangible evidence of improvement in muscular function has been obtained.

Muscle specimens removed at biopsy after treatment were distinctly better in quality, chemically and histologically, than similar specimens taken before treatment. Restoration of various characteristic muscle components accompanied regeneration of the muscle fibers.

High protein diets, beef extract and gelatin proved to be helpful supplements to glycine. Ephedrine has been of value in one case.

A patient with generalized chronic myositis that closely simulated the clinical picture of muscular dystrophy showed considerably improved muscular function following glycine therapy.

Despite the marked improvement in the structure and composition of the muscles in progressive muscular dystrophy after treatment with glycine (as indicated by examination of the biopsy specimens), a great disparity with the normal remained, probably sufficient in many cases to account for the failure of muscular function to be restored to a greater extent. The possibility of inducing further regeneration, perhaps sufficient to bring about unquestioned clinical improvement, remains to be tested.

PROTOCOLS

CASE 1.—H. M., a white man, aged 28, had had a progressive muscular dystrophy with pseudohypertrophy for nineteen years. The patient was exceptionally obese, weighing 90 Kg.; he presented a typical example of the more advanced stages of the disease, with complete loss of the use of the legs and almost total inability to perform movements with the arms. The muscles of the back were extensively involved. The calves

15. Edgeworth, Harriet: A Report of Progress on the Use of Ephedrine in a Case of Myasthenia Gravis, J. A. M. A. **94**: 1136 (April 12) 1930; The Effect of Ephedrine in the Treatment of Myasthenia Gravis: Second Report **100**: 1401 (May 6) 1933.

16. Occupational therapy has been carried out under the direction of Miss Helen S. Willard of the Philadelphia School of Occupational Therapy.

and thighs showed pronounced pseudohypertrophy. The shoulders and arms exhibited atrophy with a commensurate loss of power. The movements were restricted to those required for eating and personal care. The family history was negative.

The patient excreted in the urine in an average twenty-four hour period 0.173 Gm. of creatinine and 0.694 Gm. of creatine (as creatinine). Seventy-seven per cent of 2 Gm. of creatine given by mouth reappeared in the urine within forty-eight hours.

A specimen of the vastus externus muscle showed degenerative changes of extreme nature. There was extensive replacement of muscle by fat. Few of the muscle fibers were normal. Acid soluble extractives were present in low concentration.

Treatment was divided into two periods of approximately five months and seven months, respectively. After the preliminary biopsy and the study of the creatine and creatinine excretion in the urine, the patient was fed 15 Gm. of glycine daily for seven weeks, then 23 Gm. daily for five weeks, and again 15 Gm. daily for ten weeks. An ordinary house diet accompanied the treatment during this period. After five months of glycine feeding, a second biopsy was performed. Subsequently, the feeding of glycine was resumed at the rate of 15 Gm. daily in conjunction with a diet high in protein, particularly meats. The diet also included 15 Gm. of gelatin and, during the last two months, 5 Gm. of beef extract daily. A third biopsy was then done.

A few weeks after first receiving glycine the patient stated that he could rise from a lying position and perform certain other movements with greater facility than he could before. At the present time the patient believes that he fatigues less easily. It is difficult for an observer to see any improvement, however, and his condition is practically the same, except for a moderate loss of weight, as it was previous to treatment a year before. Nevertheless, there is no evidence of the progression of the disease, as there had been during previous years.

During the first five weeks of glycine administration the average excretion of creatinine was 0.300 Gm.; creatine (as creatinine), 1.090 Gm. Extra creatine (from glycine feeding) subsequently showed no appreciable decrease. Following fifty weeks of treatment, when glycine had been discontinued, the patient excreted 0.244 Gm. of creatinine and 0.682 Gm. of creatine (as creatinine) daily during an eleven-day period.

Certain features in the appearance of the muscle under the microscope at the end of the first period suggested that some regeneration had occurred. The muscle fibers appeared to be more nearly normal. Cross striations were clearer, and there was less fraying and separation of the longitudinal fibrils. The fibers contained more myohemoglobin. The close of the second period of treatment showed further and more definite indications of an improvement in structure. While variation in fiber size persisted, it was somewhat less marked, and the muscle bulk appeared to be increased. The fiber quality was markedly bettered.

Total nitrogen, creatine and total acid soluble phosphorus were present in higher concentrations in the specimens removed at the end of the first period. Ether extract was much lower in this specimen than in the original. The third biopsy, done six months later, substantiated previous gains and showed, furthermore, that they had been extended. Analyses at this time yielded values that were from three to four times as great as those observed before treatment in a specimen from an adjacent portion of the same muscle.

CASE 2.—L. G., a Negro man, aged 45, weighing 50 Kg., complained of muscular dystrophy, which had had a gradual onset between the ages of 28 and 30. During the following ten years there had been little change in the patient's condition. Subsequently slow progression of the disease during the five years preceding the present treatment had resulted in the gradual loss of the use of the legs and, to a considerable extent, of the arms. The muscles of the shoulder girdles were most severely affected. The hands were not involved. The patient complained of pains in the joints, but these were thought to be of postural origin. Although certain aspects of this case were not fully in accord with the diagnosis, histologic examination of the muscle revealed degenerative changes similar to those observed in the true muscular dystrophies. There had been no similar cases in the family. The patient excreted on the average during twenty-six days preceding treatment 0.460 Gm. of creatinine and 0.206 Gm. of creatine (as creatinine).

Treatment in this case also was divided into two periods. During the first, glycine was given at the rate of 15 Gm. daily with 10 Gm. of gelatin. No glycine, as such, was administered during the second period; however, the diet contained gelatin and an abundant allowance of meat; 5 Gm. of beef extract was given daily.

Toward the end of the first period and particularly at the beginning of the second, the patient appeared to be able to move his legs with greater facility and seemed improved in other ways as well. The gains made were not sustained, and little if any progress has been made subsequently. At present the condition appears to be stationary so far as clinical evidence is concerned, although the patient believes that he has been benefited.

After glycine was started at the beginning of the first period, the excretion of creatinine remained unchanged at 0.444 Gm. every twenty-four hours, while creatine (as creatinine) rose to 0.356 Gm. In this case, also, there was no reduction in the output of extra creatine. In comparison with the excretion before treatment, creatinine excretion after eleven months had

Fig. 2 (case 4).—Muscle biopsy after glycine therapy, April 18, 1933, the fiber presenting normal morphology and diameter. Striation is somewhat clearer in this instance than in the majority of fibers, although all show distinct structural improvement and greater uniformity of size. Slightly reduced from a photomicrograph with a magnification of 1,021 diameters.

decreased to 0.370 Gm., and creatine (as creatinine) had increased from the original value to 0.318 Gm.

The muscle biopsy at the close of the first treatment period revealed somewhat greater uniformity among the fibers. Unusually large fibers persisted, but the extremely small degenerated fibers were no longer to be seen. The muscle bulk remained unchanged. At the conclusion of the second treatment period, although the quality of the muscle seemed improved in comparison with the preceding specimens, the impression created was still one of marked abnormality.

The chemical analyses failed to provide any conclusive evidence in this case of restoration of muscle. At the end of the first period the only significant change was the higher total nitrogen concentration (possibly due to a higher proportion of connective tissue). A lowered concentration of creatine in the specimen obtained at the close of the second period was accounted for by the greater fat content. The acid soluble phosphorus in this instance was considerably increased, particularly when the change in fat is considered. Prolonged administration of a high phosphorus diet (beef extract) may have had a bearing on this change.

CASE 3.—Rose M., a white woman, aged 27, weighing 67 Kg., had symptoms on which the diagnosis of progressive muscular

dystrophy could not be established with certainty. There had been no other cases in the family. The onset dated back to two pregnancies in close succession. During the subsequent seven years, progressive wasting of the muscles of the shoulder girdles, of the lower extremities and of the proximal portion of the upper extremities had occurred. Creatinuria was marked. After 15 Gm. of glycine daily (plus 2 Gm. of protein per kilogram for seven months) there is little reason for believing that the patient has been helped so far as muscular function is concerned, although early in the treatment favorable response apparently had been obtained. The administration of ephedrine (three-eighths grain [0.024 Gm.] daily by mouth) likewise had no lasting effect on muscular function but was helpful because of its action in restoring peripheral circulation.

The specimen of muscle obtained before treatment exhibited mild degenerative changes in the fibers. Striation was indistinct, and separation of the longitudinal fibrils gave to the muscle fibers a frayed appearance. Staining characteristics were slightly subnormal. There was considerable fat present. A specimen of muscle obtained after treatment showed mild improvement histologically. Chemically, the noteworthy change was a significant increase in the phosphocreatine concentration. Other extractives did not change proportionately. The fat content was lowered.

CASE 4.—A. S., an Italian boy, aged 8 years, weighing 23 Kg., had progressive muscular dystrophy dating from a severe attack of vomiting at the age of 3. Involvement of the muscles appeared shortly afterward and had progressed from that time. The disease had previously developed in an older brother. At the time that treatment was begun, the patient was unable to stand and could rise to a sitting position only by considerable exertion. The upper extremities were not as severely affected. Involvement was uniformly bilateral. The calves showed pseudohypertrophy. In an average twenty-four hour period before treatment there was excreted in the urine 0.204 Gm. of creatinine and 0.258 Gm. of creatine (as creatinine).

A specimen of muscle taken before treatment showed that degeneration was far advanced, with extensive replacement by fat and fibro-areolar tissue. Few of the muscle fibers that remained were normal in any way, many presenting a glassy homogeneous appearance (fig. 1). Results of the chemical analysis were in accord with the histologic observations. The concentration of the acid soluble extractives was very low. Total nitrogen was reduced far less than other constituents, no doubt because of extensive replacement of muscle by fibrous tissue.

After 10 Gm. of glycine daily for twelve weeks in conjunction with a high protein diet after the first three weeks, a second muscle biopsy was performed. Subsequently, glycine therapy was resumed.

The patient, previously dull and sluggish, became much more active and energetic after a few weeks of treatment. While before he had lagged behind the other children of the group, he soon equaled or surpassed those in whom the disease had progressed to about the same extent. At the end of three months of treatment the patient attained the ability to support himself in a standing position when held erect. However, little further progress has been made.

The average daily excretion of creatinine for twenty-four days after glycine therapy was started was 0.212 Gm. and of creatine (as creatinine) 0.375 Gm. Following the conclusion of twelve weeks of therapy the excretion in the absence of medication was 0.147 Gm. of creatinine and 0.249 Gm. of creatine (as creatinine).

The post-treatment specimen of muscle showed considerably less degeneration than did that taken before treatment. The muscle bulk was increased. The fibers were far more uniform and did not present the glassy appearance that had characterized the earlier sample. Cross striation remained indistinct in the main, although certain fibers showed practically normal structure (fig. 2).

Creatine and total acid soluble phosphorus were higher than before, in proportion roughly to the improvement indicated by the histologic studies. Because of the extent of the disability of the patient and the pronounced degeneration observed in the muscle before treatment, the fact that a response was obtained was especially encouraging.

CASE 5.—J. M., a white boy, aged 11 years, weighing 28 Kg., had progressive muscular dystrophy with pseudohypertrophy. He had been unable to stand for about two years. There were marked contractures of the hamstring muscles. Treatment was the same as in case 4. There has been little clinical improvement.

The muscle before treatment showed extensive fibrotic replacement. Badly degenerated fibers predominated. There was great variation in size, with many excessively large fibers. In the specimen taken after treatment the fibers were more uniform, and a degree of improvement in the quality of the muscle was observed. Chemical analysis also suggested a moderate gain.

CASE 6.—H. M., a boy, aged 10 years, weighing 27 Kg., a brother of patient 5, had progressive muscular dystrophy with similar manifestations to those in case 5, although not as far advanced. Treatment was given as reported in case 4. Minor indications of partial restoration of muscle function were observed, while the contractures of the thigh muscle were partially relieved.

The muscle before treatment showed the usual marked variation in the size of fibers. Certain of the fibers were homogeneous and glassy without detectable cross striation. There was moderate fibrosis and fat infiltration. The microscopic appearance after treatment showed no improvement, with possibly some added evidence of degeneration as compared with the pretreatment specimen. In contrast to these observations, the chemical studies indicated that the muscle had improved.

CASES 7 and 8.—Negro boys, aged 12 and 13 years, brothers, showed early progressive muscular dystrophy. Weakness of the muscles of the shoulders, arms, back and legs, first noticed about nine months before, had become progressively worse. The loose shoulders, lordosis and swaying gait were well defined. The calves were hypertrophied. The muscles showed the characteristic alterations that have been described, although in less marked degree. Ten grams of glycine daily with a house diet failed to bring about any appreciable change in the condition of the patients over a period of three months.

CASE 9.—H. T., a woman, aged 65, had generalized chronic myositis. The onset three years before had been insidious, with progressively increasing muscular weakness. Pain and paresthesia were absent. The patient lacked sufficient strength to support herself and could not rise to a sitting position without considerable assistance. There was proximal wasting of both the upper and the lower limbs. The facial muscles were also involved. Reflexes were diminished. The patient's temperature was 100 F. on admission. It subsided subsequently but tended to undulate. Eosinophilia was absent.

Aside from the advanced age at the onset, the syndrome closely resembled that of progressive muscular dystrophy, and it was only with the aid of the information obtained from the muscle biopsy that the differentiation was made. Marked chronic inflammation existed in the muscle. Some fibrous tissue reaction had occurred, and there was considerable cellular exudate that at many points spread the muscle fibers apart. The fibers were relatively normal in size and staining reactions, although cross striation in many was indistinct. On the whole, fiber quality was fair.

Compared with muscular dystrophies of the same duration, the chemical changes in the muscle in this instance were relatively moderate. The acid soluble phosphorus was lowered to about half of the normal. Creatine was reduced far more, proportionately, than the phosphorus.

Before treatment, the patient excreted in an average twenty-four hour period 0.304 Gm. of creatinine and 0.253 Gm. of creatine (as creatinine). The administration of glycine for sixteen days caused the creatinine excretion to increase to 0.365 Gm., while creatine increased to 0.340 Gm.

The feeding of glycine at the rate of 15 Gm. daily was accompanied by an unmistakable return of strength to all groups of affected muscles. The patient could again walk short distances without aid or support. The greatest response was observed in the muscles of the back, and the ability to rise unassisted to a sitting position was recovered. The general condition was greatly improved. After six weeks of glycine administration the treatment was interrupted by a severe bronchitis. Bronchopneumonia developed and terminated fatally.

ABSTRACT OF DISCUSSION

ON PAPERS OF DR. BOOTHBY AND DRS. REINHOLD, CLARK, KINGSLEY, CUSTER AND MCCONNELL

HARRIET EDGEWORTH, PH.D., Tucson, Ariz.: Judging from the 100 cases from which I have heard, my own experience has been typical. None were correctly diagnosed in an early stage of the trouble. The only symptom is a fatigue, which is hard to appraise, as there is no reliable test for it. It may be limited to a few muscles, e. g., eye, jaw or heart, and also at first it may be transitory and disappear on rest. That is, the patient may complain of it only after unusual exertion, or during a cold or a menstrual period. When I tried under controlled conditions the whole gamut of drugs, endocrine preparations and physical therapy, no benefit resulted. Exposure to strong sunlight, heat, cold, menstruation, worry, excitement, respiratory infections, depressant drugs and overexertion all affect the symptoms adversely. Because of similarity in the muscular weakness to that occurring in Addison's disease, a suprarenal deficiency has been suspected. Ephedrine differs from epinephrine by only three atoms in a complex molecule. Reports indicate that glycine may be a stimulant of the suprarenal medulla. Marked vasomotor symptoms were prominent in my own case after I became helpless but subsided on the use of ephedrine. On the other hand, the ingestion of fresh cortex and the use of all the available suprarenal extracts have not produced any marked improvement in the symptoms of myasthenia gravis. After the best clinical help available and all the reported remedies failed to arrest the progress of the disease, it was felt that a careful chemical study might reveal small changes in such important constituents as sulphur, nitrogen or phosphorus that might be significant. But the only positive observation in all this painstaking and laborious work was a lowered excretion of creatinine and a creatinuria of about 150 mg. daily. This was surprising in a patient who was totally helpless. Swallowing, speaking and breathing were difficult and there was a chronic cyanosis with alarming cyanotic attacks at times. A creatinuria had been reported before in this trouble as well as in other disorders in which asthenia is a prominent symptom, but its relation to an abnormal muscle metabolism or a means of its control was unknown. In fact, in 1926 I found only one chemist who considered it of significance. But a new point of view has developed in muscle chemistry. Unforeseen constituents (such as phosphocreatine, adenine-nucleotide and adenosine) in new rôles of metabolic interest have been discovered. The energy of contraction is now believed to be supplied by the decomposition of phosphocreatine. Hence the loss of creatine may be as disabling to patients with muscular disease as sugar is to the patient with diabetes. How ephedrine produces a continuous improvement in some patients with myasthenia gravis is unknown. The daily ingestion of it over a period of three years has changed me from a totally helpless bedridden person to my present condition, wherein I live a comparatively comfortable and pleasant life of some usefulness. I have taken glycine daily for several months, discontinued it for a month and then resumed it, without demonstrable beneficial effects; but the apparently beneficial effects on other patients using glycine has thoroughly aroused my interest.

DR. FREDERICK P. MOERSCH, Rochester, Minn.: Thanks to the observations of Dr. Edgeworth, the medical profession has taken a new lease on life regarding muscular diseases. Since her contribution three years ago, many laboratories and hospitals have been working on this problem of muscle disease. My associates and I have had five cases of progressive muscular dystrophy in which glycine was used. One of these patients seemingly is somewhat better. The other four are no worse and no better. The glycine treatment in dystrophies has not been extremely encouraging. We do not do biopsies as a routine in our dystrophies. These patients have long remissions, and it seems conceivable that a patient might have an attack and have a spontaneous recovery. Dr. Edgeworth noted the beneficial effects of ephedrine three years ago, and since that time we have used it as a routine until recently. We now start the patients on glycine. Thus far we have had twenty patients with myasthenia gravis on glycine, twelve of whom have been under treatment for a considerable period. Ten are improved, five distinctly improved; one is stationary and one patient died of unrelated causes. The nature of myasthenia gravis is unknown. There are a tremendous number of theories and yet none of them seem to hold up under clinical scrutiny. It seems that infection plays a part. [Two slides from cases of myasthenia gravis were demonstrated, showing marked round cell infiltration, increase of nuclei and changes in muscle fibers.] These observations suggest that one may be dealing here with some infectious process, and it may be that myasthenia gravis is related in some roundabout way to dermatomyositis, scleroderma or even muscular dystrophy.

DR. ERWIN BRAND, New York: From the analysis of the papers by Thomas and by Milhorat I am under the impression that out of their eleven cases of muscular dystrophy only case 1 and, perhaps, case 3 showed definite improvement on the administration of glycine. Since these two cases showed an almost negligible creatinuria in spite of their extensive incapacity, it is questionable whether they were cases of progressive muscular dystrophy similar to those that have been studied. One should consider the possibility that their two cases were related to myasthenia gravis. My experience with glycine therapy in muscular dystrophy coincides with that of Dr. Moersch. Although in some of the children under my care the mothers were of the opinion that there was some slight improvement in the ability to walk and in general activity, I was not aware of any striking beneficial results on examination. I kept some of my patients on meat-free diets for a long time for special studies. Others have received their ordinary regular diet plus glycine. I had a number of patients on a very high protein intake plus glycine. One patient received a diet containing 100 Gm. of protein plus 25 Gm. of glycine plus from 50 to 100 Gm. of casein daily for two months, the patient excreting about 25 Gm. of nitrogen daily. No clinical improvement was noted in spite of this high protein intake. I have recently carried out some experiments with benzoic and phenylacetic acid in order to gain some insight regarding some phases of intermediary protein metabolism. As a result I have formulated a working hypothesis concerning the possible rôle of glutathione in creatine formation, also in certain mechanisms of detoxification and other aspects of metabolism. Owing to the expensiveness of the glutathione, I have started some experiments in which the combination of the three amino acids that go to form the glutathione molecule (glycine, cystine and glutamic acid) have been fed. I hope subsequently to be able to carry out some studies with glutathione itself.

DR. MEYER SOLOMON, Chicago: I have under my management at present a woman, aged 25, who has had the condition about six years and who was diagnosed as having hysteria about six years ago. She presents a typical picture, including regurgitation of fluids through the nose, and weakness of the neck, arm and leg muscles. One month ago, after reading the article of Dr. Edgeworth and her encouraging report, I put the patient on ephedrine and can report quite a remarkable change. I didn't tell her what she was getting. Many of these cases are early looked on as being of emotional etiology, especially if symptoms come on very suddenly or the patient falls down getting on a street car or going up steps, as this patient did. The theory is that the symptoms are due to a fear reaction and autosuggestion following a fall with trauma. I would, however, call attention to the fact that Dr. Moersch has stressed: one should be sure that the condition is myasthenia gravis and not a psychoneurosis, because the therapy is different and if the condition is a psychoneurosis the patient will get well if he has faith and confidence, no matter what treatment is given. It is necessary to be on guard not to diagnose a functional case as one of myasthenia gravis as well as not to diagnose an instance of myasthenia gravis as a functional type.

MAURICE B. VISSCHER, PH.D., Chicago: With regard to Dr. Boothby's emphasis on the infectious element in the etiology of myasthenia gravis, I wish to state that in creatine determinations in sixty subjects I have found in normal individuals a very considerable creatine output associated with the occurrence of infection of the upper respiratory tract. This was of a very short duration and was not found at other times.

I have found this consistently and feel that this creatinuria during a certain stage of the upper respiratory infection may be of interest in connection with this suggestion. Recent knowledge regarding the function of creatine in muscle metabolism, particularly in its relation to the diffusibility of the creatine complex in muscle, has not been taken into account. It has been known for twenty years that creatine diffuses out of muscle only after the muscle is fatigued. The creatine in muscle is in an indiffusible state in resting muscle and it is only in the fatigued muscle when the creatine phosphate is broken down into creatine phosphoric acid that creatine can diffuse out. It seems likely that a defect in the rebuilding of creatine phosphate from creatine and the other precursor is of more importance than anything else in the creatinuria of these conditions. Certainly if the creatine were present as creatine phosphate it could not diffuse out. The influence of the ephedrine may be linked up with this mechanism. It is well known that epinephrine and other sympathetic stimulation, either direct sympathetic or pharmacologic, will accelerate the recovery process in muscle, which is essentially the rebuilding of creatine phosphate from creatine and phosphoric acid. In this picture one sees the importance of accelerating the recovery process, the resynthesis of creatine phosphate, and one wonders whether the therapeutic problem is not directly related to this phenomenon.

DR. M. H. NATHANSON, Minneapolis: There is little doubt that the amines related in structure to epinephrine, including ephedrine, have the same pharmacologic actions. I felt that I demonstrated this in the paper I presented on the action of epinephrine-like compounds on the heart. The differences are largely quantitative. In view of the similarity in the physiologic action of epinephrine and ephedrine, would it not be possible to apply an acute therapeutic test with epinephrine in cases of myasthenia gravis? Epinephrine could be administered in an effective dose and dynamometer tests used to determine whether there is any increase in muscular strength. In regard to ephedrine there appears to be a tremendous variation in the susceptibility of different individuals. It is possible that the drug is at times discarded before a sufficient dosage has been administered. It might be of value to test patients who are receiving the drug with some simple reactions as the blood pressure response, to determine whether they are actually having a systemic effect from the drug.

DR. J. H. CLARK, Philadelphia: Our purpose in doing muscle biopsies and in studying them chemically and histologically is to try to determine what is taking place in the muscles. Just as kidney function is determined by blood analyses, so we thought muscle analyses would tell what is happening in muscles under glycocoll therapy. We do feel that there is a change and for the better but we have been somewhat disappointed in the clinical results obtained in the majority of our cases. We now have patients on occupational therapy to determine whether it will help reeducate muscles.

DR. WALTER M. BOOTHBY, Rochester, Minn.: Epinephrine has been frequently tried in myasthenia gravis without proving of any definite value. Dr. Edgeworth tells me that at various times it was tried out with her, and in none of the trials did she receive any benefit; her impression was that it made her worse. My experience is not yet sufficiently large to justify any definite conclusion, but I have the impression that the patients who were first started on glycine and kept on that several weeks before starting ephedrine did better than those who had been taking ephedrine a long time before starting glycine. I wish particularly to call attention to the danger of giving too much ephedrine and concur in Dr. Edgeworth's warning on this point (THE JOURNAL, May 6, 1933, p. 1401). I wish to thank Dr. Edgeworth and Dr. Guyton for especially coming to this meeting to make their own reports.

Vitamins Manufactured by Animals.—The vitamins were originally believed to be manufactured only by plants and not by animals, but this view can no longer be accepted. Vitamin A can be made by animals from its precursor carotene, a yellow pigment which is widely distributed in the plant world. —Colwell, S. J.: Vitamins in Clinical Medicine, *Practitioner* **132**:15 (Jan.) 1934.

VALUE OF SILVER ARSPHENAMINE IN THE TREATMENT OF EARLY SYPHILIS

CONCLUSIONS BASED ON A STUDY OF 104 CASES

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Although approximately 200 patients with primary and early secondary syphilis have been under treatment with silver arsphenamine at the Vanderbilt Clinic since June, 1931, some have been there for less than six months, many have failed to return after a few times and others have been transferred; thus, on only 104 of the 200 patients are there data complete enough to include in this report. All of the patients had primary or early secondary lesions.

Observations of the time required for the disappearance of the spirochetes from the initial lesion after treatment was instituted were made on 12 of the 104 patients. The time necessary for the healing of the primary lesion, the disappearance of secondary lesions and the behavior of the Wassermann reaction were studied in the remaining ninety-two patients and the number and the types of complications were tabulated. The number of injections and the total amount of the drug necessary to bring about these changes were also calculated, the results being compared with those obtained with old arsphenamine and with neoarsphenamine.

ROUTINE TREATMENT

The ideal routine treatment at the clinic is to give each patient at least three courses of 10 injections each of silver arsphenamine, but every physician knows the

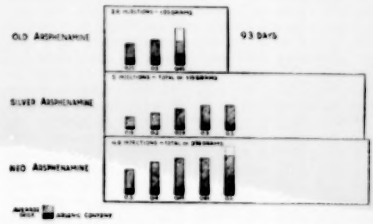

Fig. 1.—Average time and treatment required for healing of primary lesions.

difficulty of getting patients, especially those who attend a clinic, to adhere to a regular schedule. With men, the initial injection is usually 0.15 Gm., the amount being gradually increased so that the last 4 injections will be 0.3 Gm. each. With women, the initial injection is usually 0.1 Gm., and the amount is gradually increased to 0.25 Gm. With the first course of arsphenamine, 15 injections of an insoluble mercury or bismuth preparation are given at intervals of from five to seven days, followed by alternate courses of arsphenamine and a mercury or bismuth preparation, so that each patient will receive at least 30 injections of silver arsphenamine and 45 of a mercury or bismuth preparation without interruption.

From the Vanderbilt Clinic, Columbia University College of Physicians and Surgeons.

Read before the Section on Dermatology and Syphilology at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 15, 1933.

HEALING OF LESIONS

Primary Lesions.—The records in twenty-four of the cases showed that it required as short a period as 2 days and as long a period as 49 days from the initial treatment for the primary lesions to heal, the average being 20.92 days. The patients had from 1 to 10 injections, and from 0.1 to 2.35 Gm. of silver arsphenamine. The unusually long time that it took for some of the chancres to heal could be explained by the large size of the chancre and the presence of secondary infection.

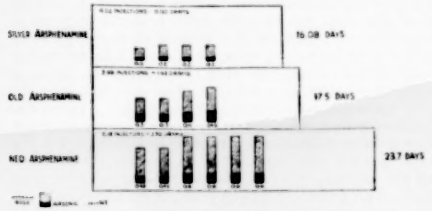

Fig. 2.—Average time and treatment required for healing of secondary lesions.

Secondary Lesions.—In fifty-two patients with secondary syphilis with lesions of the skin and mucous membranes, it required from 2 to 63 days from the first dose of silver arsphenamine for the lesions to disappear, or an average of 16.08 days. The patients were given from 1 to 10 injections, or an average of 4.02. The number of grams received was from 0.15 to 2.7, an average of 0.765.

In this group, the secondary lesions recurred in one patient. This patient received treatment for three weeks, was absent from treatment for eighteen weeks, and then received an additional two and one-half weeks' treatment followed by a second lapse of sixteen weeks. He had had a total of only 8 injections. The relapse in this case makes the figure for clinical relapse in this group 1.9 per cent.

WASSERMANN REACTIONS

Primary Cases with Negative Serologic Tests.—There were thirteen primary cases in which the serologic tests were negative, the diagnosis being established in each instance by positive observations on dark-field examination and by the clinical appearance of the initial lesion. While the Wassermann reaction was negative in all thirteen cases when treatment was begun, it remained so in only two cases. It has continued to be negative in these two to date, a period of twenty-six and forty-four weeks, respectively. Of the remaining eleven, the Wassermann reaction became slightly positive (plus-minus) in five, later becoming negative and continuing so in three of the five, and fluctuating between negative and plus-minus in the other two. A strongly positive Wassermann reaction (4 plus) developed in the other six patients; in three of these the reactions became negative and have persisted so, in two they fluctuated between negative and plus-minus, and in one the reaction has remained strongly positive to date.

For the purpose of this paper, I have classified as positive all Wassermann reactions with a reading of from 4 plus (strongly positive) to 2 plus in both antigens (moderately positive). The term plus-minus (slightly positive) includes those cases with a 1 plus reaction in both antigens, and from a 4 to 2 plus reaction in one antigen and 1 plus or negative reaction in the other antigens; and the term negative, those cases with a 1 plus reaction in one antigen and a negative reaction in the other, or negative reactions in both antigens.

Cases with Positive Serologic Tests.—The records on eleven primary cases in which the serologic tests were positive showed that from 24 to 103 days after the first treatment were required to produce negative Wassermann reactions, with an average of 59.81 days. The patients in this group received from 8 to 17 doses and from 0.85 to 3.95 Gm., the average being 2.17 Gm. of the drug and 10 injections.

In five cases there was a reversal of the negative Wassermann reactions from nine to fifty-six weeks after treatment was begun. In four, the reaction was only slightly positive (in three cases with a 2 plus reaction in the cholesterol antigen and a negative reaction in the alcoholic antigen; in one case, a 2 plus reaction in the alcoholic antigen and a negative reaction in the cholesterol antigen). In the fifth case there was a relapse to strongly positive in both antigens, after the patient had been absent from treatment for three different periods of from six to nine weeks each.

In addition to the eleven primary cases in which the serologic tests were positive, there were three in which a complete reversal of the positive Wassermann reaction did not take place. Two of these patients were treated regularly for thirty-one and twenty-eight and one-half weeks, respectively, one receiving 4.2 Gm. of silver arsphenamine in 18 injections, and the other 3.3 Gm. in 19 injections. The third received 9 injections, was absent from treatment for twenty-three weeks, and then had 9 more injections. He was given a total of 4.35 Gm. in 18 injections. In the first and third cases, the serum remained 4 plus in both antigens of the Wassermann reaction, while in the second it showed a 4 plus reaction in the cholesterol antigen only.

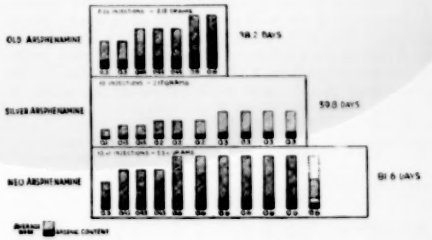

Fig. 3.—Average time and treatment required for the Wassermann reaction to become negative in primary cases in which the serologic test is positive.

Secondary Cases.—There were sixty-five cases of secondary syphilis, and of this number, negative Wassermann reactions were obtained in fifty-five within from 32 to 362 days after the beginning of treatment with silver arsphenamine, the average number of days being 112.89. The number of doses required ranged from 4 to 38, averaging 11.02 injections; the number of grams each patient received varied from 0.65 to 9.10, an average of 2.51.

Of the fifty-five cases in which negative Wassermann reactions were obtained, a serologic relapse occurred in

twenty-one. In sixteen of these, the relapse was slight, the reaction being only 2 plus in the cholesterol antigen and negative in the alcoholic antigen in eleven cases; 3 plus in the cholesterol antigen and negative in the alcoholic antigen in two cases; 2 plus in the alcoholic antigen and negative in the cholesterol antigen in one case, and 3 plus in the cholesterol antigen and 1 plus with the alcoholic antigen in two cases. In the remaining five of the twenty-one cases in which relapses occurred, there was a reversal of the negative Wassermann reaction to 3 plus in the cholesterol antigen and to 2 plus in the alcoholic antigen in one, and to 4 plus in both antigens in four cases. The most recent Wassermann reactions obtained in twelve of the twenty-one cases were negative.

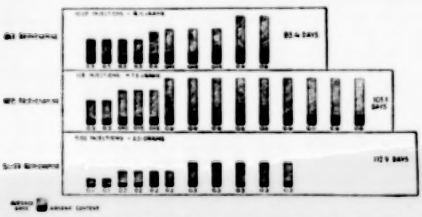

Fig. 4.—Average time and treatment required for the Wassermann reaction to become negative in early secondary syphilis.

In the ten of the sixty-five patients with secondary syphilis who did not obtain a complete reversal of their positive Wassermann reactions the reactions remained persistently 4 plus in four, and showed some lessening of intensity in the other six. Of the four patients with persistently strongly positive Wassermann reactions, one attended the clinic regularly for thirty-one weeks and then was absent, and the other three were absent from eight to nineteen weeks after a few injections (from 4 to 6). Of the six cases in which there was some improvement in the Wassermann reaction, the reaction in one came down to 4 plus in the cholesterol antigen and to 1 plus in the alcoholic antigen; in a second case, to 3 plus in the cholesterol antigen and to 1 plus in the alcoholic antigen; in a third case, to a 4 plus in the cholesterol antigen and to negative in the alcoholic antigen; in the fourth and fifth cases, to 2 plus in the cholesterol antigen and to negative in the alcoholic antigen; in the sixth case, to 2 plus in both antigens under silver arsphenamine, later becoming negative with another drug.

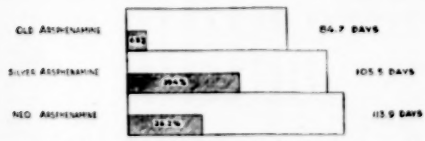

Fig. 5.—Comparison by drugs of results based on the first negative Wassermann reaction and the serologic relapses.

DISAPPEARANCE OF SPIROCHETES

It was only late in the study of the problem that repeated examinations were made of the primary lesions for the time required for the disappearance of spirochetes from the early lesions of syphilis, so that only twelve cases could be included in this group. This phase of the problem did not appear to be important because of the difficulty so frequently experienced in finding the spirochete after repeated examinations even in untreated patients.

From the twelve patients with early lesions in which spirochetes were demonstrated, it was found that an average of 3.91 days, of 2.37 injections and of 0.35 Gm. was required for the disappearance of the spirochetes.

SPINAL FLUID EXAMINATION

A lumbar puncture was performed on 39 of the 104 patients under observation. Seven showed a positive serologic test, two having only moderately positive reactions with 2 cc., with a slightly increased globulin and a syphilitic colloidal gold curve. The other five patients had strongly positive Wassermann reactions in a 0.5 cc. dilution, two with a positive syphilitic colloidal gold curve and an increase in the globulin. One of the patients with a mildly positive reaction showed a negative reaction after further routine treatment, while the other patient was transferred to another clinic. One of the patients with a strongly positive reaction also showed an entirely negative reaction on additional routine treatment; the other four patients with strongly positive reactions had only recently undergone spinal puncture and are continuing under treatment. One of these patients with a strongly positive Wassermann reaction of the spinal fluid had been absent from treatment for seven months. He is also one of the patients from whom a negative Wassermann reaction of the blood was not obtained.

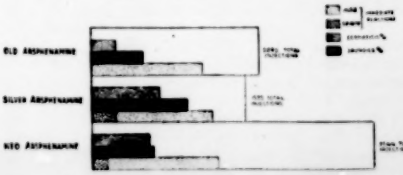

Fig. 6.—Complications following the administration of arsphenamine.

REACTIONS

In tabulating the reactions of the patients to silver arsphenamine, the complications were divided into two groups, immediate and delayed. The immediate reactions were subdivided as mild and severe, the mild consisting of nausea, malaise, headache and feverish or chilly sensations, these lasting only a few hours. The severe reactions were the aforementioned symptoms greatly intensified and sometimes lasting from twenty-four to seventy-two hours. The delayed reactions were either jaundice or dermatitis; there were no cases of neuritis or nephritis.

Twenty-four patients, or 27 per cent, had reactions, some of them having both immediate and delayed complications. Fourteen had immediate reactions; eleven of these had mild reactions, some of them reacting more than once, giving a total of fifteen in the mild group; three patients had severe immediate reactions. There were seventeen patients with delayed reactions, two having both dermatitis and jaundice. Dermatitis was present in eight instances and jaundice in eleven. The jaundice varied from a slight yellowish tinge of the sclera with a slight increase in the icteric index (to 17) to a decided jaundice of the skin and mucous

membranes. The majority of the cases were of a mild type. In one instance the icterus was marked, lasting twenty-eight weeks, with an exacerbation during a mastoiditis for which operation was performed under ether anesthesia. The jaundice appeared after an average of 13.3 injections, but in some instances after as few as 4 or as many as 32 intravenous injections. The patients had received on an average of 2.96 Gm. of silver arsphenamine before the appearance of the jaundice. In some instances the icterus was noticeable after as little as 0.9 Gm. of silver arsphenamine, although one patient had been given as much as 5.5 Gm. before an icteric change was detected in the skin and mucous membranes. The jaundice appeared on an average of 147.6 days after treatment was instituted; the shortest length of time was 69 days and the longest, 242. The presence of jaundice was noticed from 1 to 133 days following the last intravenous injection, or an average of 42 days. In two instances the jaundice was preceded by dermatitis, and in these two cases the symptoms were very mild and lasted only about two weeks.

There were no cases of generalized exfoliative dermatitis in the group of patients treated with silver arsphenamine, although eight patients did have the eczematoid or scarlatiniform variety. All had a mild type, and no patient was sufficiently ill to require hospitalization. In most instances the treatment with silver arsphenamine was resumed after a short rest period, during which the patient was receiving a mercury or bismuth preparation. Those who showed cutaneous complications had received from 4 to 13 injections, or an average of 7.75, with an average of 1.50 Gm. of silver arsphenamine, the lowest amount being 0.65 Gm. and the highest, 2.65. These patients had been under treatment from 12 to 133 days before the dermatitis was noted. The dermatitis appeared as early as 1 day after the last injection and as late as 6 weeks, making an average of 10.9 days from the last treatment with silver asphenamine.

The ratio of the number of reactors to the total number of patients was 1:4, while the ratio of mild complications to the total number of injections given was 1:129, and that of the severe and delayed combined, 1:88.

PATIENTS OBSERVED MORE THAN ONE YEAR

Forty-four of the group of ninety-two patients were treated and observed for over a year, the average length of time under active treatment being 68 weeks, the shortest 24, and the longest 167 weeks. Eight of these patients were observed for an average of forty weeks after suspension of treatment. The average for both observation and treatment was seventy-five and one-half weeks. This group of forty-four patients received an average of 25.91 injections, and 5.99 Gm. of silver arsphenamine. The highest number of injections was 62.5, and the greatest number of grams to an individual patient was 14.55. Fifteen of the patients have been given over 7 Gm. of silver arsphenamine, and to the present time no one has shown any evidence of an argyria. Only three of these patients received over 40 injections of silver arsphenamine.

Twenty-one patients in this group observed for over one year had a relapse of the Wassermann reaction; sixteen to plus-minus only (less than 2+ in both antigens) and five to strongly positive, or 4 plus. The last Wassermann reactions in sixteen cases were negative. Seven of the twenty-one patients showed more than one relapse of the Wassermann reaction. Twelve patients in this group had complications, eight having immediate reactions and six delayed reactions. (Two patients had dermatitis; four had icterus.)

ARGYRIA

During the past two years, following extensive treatment with silver arsphenamine in the clinic, four patients have been observed with the typical slate blue-gray pigmentation of the skin seen in persons with argyria. Three were from the Vanderbilt Clinic and one had been treated in another department and transferred to the dermatologic service. The pigmentation was noted after an average of 75 injections (40, 82, 68 and 100) and 12.57 Gm. of the drug (7.35, 16.40, 10.95 and 15.6 Gm.). They had received treatment for an average of 5 years (3⅝, 9¾, 4 and 4¾ years). Their ages were 64, 52, 55 and 53, respectively. The pigmentation was most marked in the oldest patient—the one who had received the smallest amount (7.35 Gm.) of silver arsphenamine and fewest number of injections (40) over the shortest period of time (3⅝ years).

Argyria Following Use of Silver Arsphenamine

	Case 1	Case 2	Case 3	Case 4
Description of pigmentation	Skin and mucous membranes a distinct slate gray	Skin and mucous membranes a slate gray	Skin of head and neck a slate gray	Skin and mucous membranes a slate gray
Age at onset	64 years	52 years	55 years	53 years
Sex	Male	Male	Male	Male
Race	Hungarian	Irish	Polish	Italian
Amount of silver arsphenamine received	7.35 Gm.	16.40 Gm.	10.95 Gm.	15.6 Gm.
Number of injections	40	82	68	100
Length of treatment with silver arsphenamine	3⅝ years	9¾ years	4 years	4¾ years
Interval from last treatment to onset of argyria	1½ months	1 month	10 days	13 months
Duration of syphilis on admission	40 years	18 years	22 years	25 years
Wassermann reaction on admission: Blood	+	—	+	+
Spinal fluid	+	+	+	+
Diagnosis on admission	Tabes dorsalis; optic atrophy, right eye	Tabes dorsalis; optic atrophy, right eye	Tabes dorsalis incipiens; optic atrophy, right eye	Dementia paralytica
Treatment previous to admission	72 injections of arsphenamine; 62 of mercury	15 intravenous injections; 7 intraspinal injections	None	70 injections of arsphenamine; 50 of mercury
Other drugs after admission: Mercury	6	2	19	5
Bismuth	28	0	48	105
Others	8 injections of trypars-amide	28 injections of arsphenamine	0	33 injections of arsphenamine
Spinal treatment	8	25	19	8

It is evident from the clinic records of persons treated with silver arsphenamine that argyria should

be borne in mind as a possible complication in all persons treated with that drug, especially in older people receiving repeated injections over a long period of time. It is significant that all four of the cases of argyria were in men who were 50 and over, each one of whom was also suffering with neurosyphilis. Three had optic atrophy, especially marked in the right eye, and tabes dorsalis, while the fourth had dementia paralytica. That argyria is an infrequent complication (especially in younger subjects) following medication with silver arsphenamine is evidenced by the rarity with which one sees or hears of the condition. Of the many patients treated with silver arsphenamine at the clinic since 1919, there are records of only the four cases of argyria, and, so far as can be determined, only nine have been thus far reported in medical literature following treatment with this drug. Two of the patients have shown a marked decrease in the intensity of the pigmentation after a year's treatment with sodium and calcium thiosulphate given intravenously and by mouth. One patient with argyria following long use of mild silver protein has also shown a decided lessening in the intensity of the pigmentation under the same treatment.

Fig. 7.—Cases of argyria: *A*, patient P. O' T., aged 52, who was given 16.4 Gm. of silver arsphenamine in eighty-two injections; *B*, patient, aged 55, who was given 10.95 Gm. of silver arsphenamine in sixty-eight injections; *C*, patient H. B., who had argyria following several years' use of mild silver protein.

COMPARISON OF STATISTICS WITH THOSE OBTAINED WITH OLD ARSPHENAMINE AND NEOARSPHENAMINE

On comparison of the records of the ninety-two patients with primary and early secondary syphilis who received silver arsphenamine with the records of others treated in a like manner with old arsphenamine and with neoarsphenamine, it was found that silver arsphenamine, while decidedly less efficacious than old arsphenamine, is in most respects superior to neoarsphenamine, as can be seen from the study of the charts.

In the primary cases with negative and positive serologic tests, a fewer number of injections of silver arsphenamine, a smaller amount of the drug and a slightly shorter length of time were required to cause the initial lesion to disappear, than was the case with neoarsphenamine. Even the secondary lesions disappeared more rapidly with a fewer number of injections and a smaller total of grams of silver arsphenamine than with neoarsphenamine. In the primary cases with positive serologic tests the average time for the Wassermann reaction to become negative was shorter, with fewer injections, and with a smaller amount in grams than with neoarsphenamine. The same was true of secondary cases except that the average time in days required for the Wassermann reaction to become negative was approximately the same for both neoarsphenamine and silver arsphenamine, the time being 113 and 112.89 days, respectively.

COMPARISON OF COMPLICATIONS FOLLOWING THE ADMINISTRATION OF THE THREE ARSPHENAMINES

On comparison of the complications that arose following the administration of silver arsphenamine with those tabulated after treatment with old arsphenamine and with neoarsphenamine, it was observed that silver arsphenamine showed slightly to advantage over the other two in immediate mild reactions, the ratio being 1:8 for silver, and 1:7 for both old arsphenamine and neoarsphenamine. There were no severe reactions with old arsphenamine, while the ratio was 1:53 with neoarsphenamine and 1:33 with silver arsphenamine. The best showing is made with old arsphenamine and the next best with neoarsphenamine, but, it is only correct to state that the delayed reactions after silver arsphenamine were of a much milder character than those following injections of neoarsphenamine. There was not a single case of generalized exfoliative dermatitis after injections of silver arsphenamine, and only one of severe jaundice, that patient having had an exacerbation during an acute mastoiditis and having been operated on under a general anesthetic (ether). Perhaps silver arsphenamine may have an advantage over old arsphenamine and neoarsphenamine in that there is a smaller quantity of arsenic present in each dose—about half the amount of the arsenic in the other two drugs.

From the study of the comparative values of old arsphenamine, neoarsphenamine and silver arsphenamine, I believe that old arsphenamine is proving itself to be the most efficacious remedy, and first choice for the treatment of early syphilis, and that silver arsphenamine seems to be, in practically every respect, superior to neoarsphenamine. The technic in the administration of silver arsphenamine is just as simple as is that of neoarsphenamine, and it further has the advantage of not possessing the toxic sulphur radical contained in neoarsphenamine and in neosilverarsphenamine.

For the past three years, in private practice, I have used old arsphenamine exclusively, except in a few selected cases in which silver arsphenamine was administered. I have given no neoarsphenamine.

In the clinics and hospital with which I am connected, only old arsphenamine and silver arsphenamine are now used.

The greatest objection to the general use of old arsphenamine has been the complicated technic of giving it. While I still advocate administering all arsphenamines by the gravity method and well diluted, I have for many years treated syphilitic infants and adults with very small veins by the syringe method with a hypodermic or small needle, using old or silver arsphenamine. I have only recently given the fortieth intravenous injection of old arsphenamine to an infant under 1 year of age, injecting the drug into the scalp veins without experiencing the slightest difficulty. Now that the manufacturer of arsphenamine dispenses with each ampule of the drug an ampule of distilled water and another of sodium hydroxide sufficient to alkalinize the solution (also litmus paper to test the alkalinity), there can be little reason for not using the most effective antisyphilitic remedy, which I have no hesitancy in saying I believe to be old arsphenamine.

ABSTRACT OF DISCUSSION

DR. EARL D. OSBORNE, Buffalo: For several meetings, new preparations have been suggested for the treatment of syphilis. If I should give the one reason why silver arsphenamine is not more popular, I would say it is fear of the development of argyria. Dr. Cannon has honestly pointed out that he has had four cases in a long series in several years' use of this drug. I have not had any cases. I did not get from Dr. Cannon what his dosage is over any period of time, whether he gives 0.3 Gm. every week or 0.3 Gm. every five to seven days. European observers have pointed out that the maximum total dosage within the safety limit equals from 7 to 9 Gm. Analysis of the charts of Dr. Cannon shows that, with the exception of the one old man, the other patients received considerably in excess of the accepted standard of safety with regard to argyria. I have not had any cases, for I have kept the total dosage below 9 Gm. Dr. Cannon has justified the observation that the sheet anchor in the treatment of syphilis is arsphenamine. Analysis of his charts shows that the serologic relapses surpass those of sulpharsphenamine. When I cannot use arsphenamine I use neoarsphenamine. Dr. Cannon produced effects with silver arsphenamine comparable to those produced with arsphenamine or neoarsphenamine. The late effects, such as jaundice, are closely connected with the late effect of the metabolism of arsenic in the liver. I wonder whether bismuth compounds were used along with it, or whether the patients had previously had arsphenamine or neoarsphenamine. The mere finding of larger amounts of silver arsphenamine in the spinal cord does not mean that it is more effective than any other. That applies to some of the newer drugs as well. As to the combination of silver arsphenamine with heavy metals such as bismuth, I have made it a rule to cut the dose of bismuth at least one third, for after all one is using two heavy metals and I think Dr. Cannon's results were perhaps due to too much heavy metal

DR. A. BENSON CANNON, New York: I made it a rule to give men from 0.1 to 0.3 Gm. of silver arsphenamine, usually beginning with the smaller amount and gradually increasing so that the last four injections were of the maximum dose. A course of ten injections was prescribed, followed by mercury or bismuth compounds at intervals between the courses of silver arsphenamine. In women the doses were somewhat less, the maximum being usually 0.25 Gm. As my purpose was to compare the results from the use of silver arsphenamine with those that I had obtained with arsphenamine and neoarsphenamine, I selected only patients with primary and secondary lesions who had not received any previous treatment. I was surprised by the number of cases of jaundice I had, but, as I remarked, only one of the cases presented a severe type of icterus and that might be explained by the patient's having been operated on for an acute mastoiditis. I make a bile index on each individual receiving treatment and any patient showing an icteric index of 15 or more was counted as a case of jaundice whether or not there was any noticeable change in the color of the skin or sclera, a fact that might in part account for the large number of cases of jaundice I had in the series of patients treated with silver arsphenamine.

MODERN TREATMENT OF BRAIN ABSCESS

HARRY P. CAHILL, M.D.
BOSTON

Success in the treatment of brain abscess rests on a tripod of medical actions: first, a correct diagnosis; second, proper operative methods, and third, rational after-treatment.

It is a simple procedure to state the characteristic signs and symptoms of frontal, temporosphenoidal or cerebellar abscess formation. When, however, increased intracranial pressure, spreading cerebral edema or localized meningeal sepsis jumble the entire abnormal picture into a jig-saw puzzle of contradictions, a clear mind with balanced judgment is most vital. When the symptoms of temporosphenoidal or cerebellar abscess are clear and distinct, the diagnosis may be definite. When the converse is true, a carefully taken history may be the determinant of success.

The characteristic focal signs of brain abscess may be absent, and the diagnosis of the condition rest entirely on the presence of general signs and symptoms of intracranial abscess formation. Here, drowsiness with a history of vomiting may clear away the fog of uncertainty resulting from the associated secondary meningitis.

The presence of sinus thrombosis always points to the posterior fossa as the probable site of the brain lesion. In all cases of sinus thrombosis, aseptic torcular or even aseptic cavernous sinus thrombosis resulting from progressive extension of the thrombus may produce signs and symptoms due entirely to obstruction of the cerebral venous flow. In all cases of this kind, extension of the sterile distal end of the clot to the torcula or even to the cavernous sinus may produce signs and symptoms of severe intracranial pressure. Two cases of this type in which the distal extension of the thrombi remained sterile and produced marked venous obstruction are worthy of consideration:

REPORT OF CASES

CASE 1.—L. S., a girl, aged 9, was admitted to the Massachusetts Eye and Ear Infirmary on Jan. 28, 1927. Four weeks

Read before the Section on Laryngology, Otology and Rhinology at the Eighty-Fourth Annual Session of the American Medical Association, Milwaukee, June 14, 1933.

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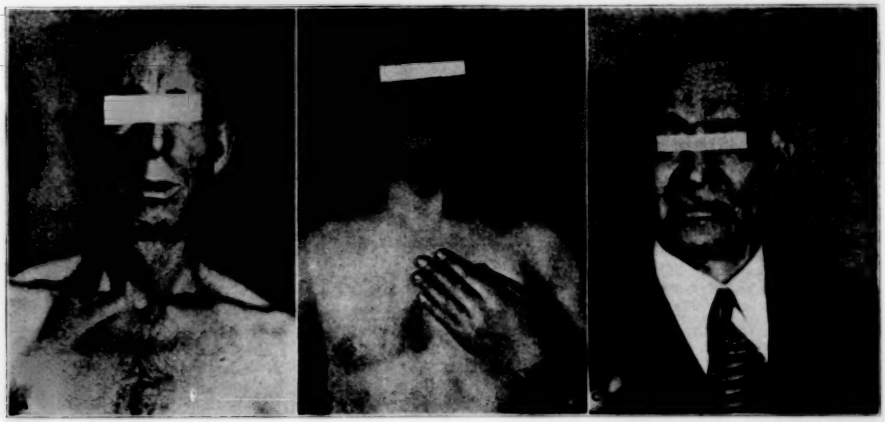

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For the past three years, in private practice, I have used old arsphenamine exclusively, except in a few selected cases in which silver arsphenamine was administered. I have given no neoarsphenamine.

In the clinics and hospital with which I am connected, only old arsphenamine and silver arsphenamine are now used.

The greatest objection to the general use of old arsphenamine has been the complicated technic of giving it. While I still advocate administering all arsphenamines by the gravity method and well diluted, I have for many years treated syphilitic infants and adults with very small veins by the syringe method with a hypodermic or small needle, using old or silver arsphenamine. I have only recently given the fortieth intravenous injection of old arsphenamine to an infant under 1 year of age, injecting the drug into the scalp veins without experiencing the slightest difficulty. Now that the manufacturer of arsphenamine dispenses with each ampule of the drug an ampule of distilled water and another of sodium hydroxide sufficient to alkalinize the solution (also litmus paper to test the alkalinity), there can be little reason for not using the most effective antisyphilitic remedy, which I have no hesitancy in saying I believe to be old arsphenamine.

ABSTRACT OF DISCUSSION

DR. EARL D. OSBORNE, Buffalo: For several meetings, new preparations have been suggested for the treatment of syphilis. If I should give the one reason why silver arsphenamine is not more popular, I would say it is fear of the development of argyria. Dr. Cannon has honestly pointed out that he has had four cases in a long series in several years' use of this drug. I have not had any cases. I did not get from Dr. Cannon what his dosage is over any period of time, whether he gives 0.3 Gm. every week or 0.3 Gm. every five to seven days. European observers have pointed out that the maximum total dosage within the safety limit equals from 7 to 9 Gm. Analysis of the charts of Dr. Cannon shows that, with the exception of the one old man, the other patients received considerably in excess of the accepted standard of safety with regard to argyria. I have not had any cases, for I have kept the total dosage below 9 Gm. Dr. Cannon has justified the observation that the sheet anchor in the treatment of syphilis is arsphenamine. Analysis of his charts shows that the serologic relapses surpass those of sulpharsphenamine. When I cannot use arsphenamine I use neoarsphenamine. Dr. Cannon produced effects with silver arsphenamine comparable to those produced with arsphenamine or neoarsphenamine. The late effects, such as jaundice, are closely connected with the late effect of the metabolism of arsenic in the liver. I wonder whether bismuth compounds were used along with it, or whether the patients had previously had arsphenamine or neoarsphenamine. The mere finding of larger amounts of silver arsphenamine in the spinal cord does not mean that it is more effective than any other. That applies to some of the newer drugs as well. As to the combination of silver arsphenamine with heavy metals such as bismuth, I have made it a rule to cut the dose of bismuth at least one third, for after all one is using two heavy metals and I think Dr. Cannon's results were perhaps due to too much heavy metal

DR. A. BENSON CANNON, New York: I made it a rule to give men from 0.1 to 0.3 Gm. of silver arsphenamine, usually beginning with the smaller amount and gradually increasing so that the last four injections were of the maximum dose. A course of ten injections was prescribed, followed by mercury or bismuth compounds at intervals between the courses of silver arsphenamine. In women the doses were somewhat less, the maximum being usually 0.25 Gm. As my purpose was to compare the results from the use of silver arsphenamine with those that I had obtained with arsphenamine and neoarsphenamine, I selected only patients with primary and secondary lesions who had not received any previous treatment. I was surprised by the number of cases of jaundice I had, but, as I remarked, only one of the cases presented a severe type of icterus and that might be explained by the patient's having been operated on for an acute mastoiditis. I make a bile index on each individual receiving treatment and any patient showing an icteric index of 15 or more was counted as a case of jaundice whether or not there was any noticeable change in the color of the skin or sclera, a fact that might in part account for the large number of cases of jaundice I had in the series of patients treated with silver arsphenamine.

MODERN TREATMENT OF BRAIN ABSCESS

HARRY P. CAHILL, M.D.
BOSTON

Success in the treatment of brain abscess rests on a tripod of medical actions: first, a correct diagnosis; second, proper operative methods, and third, rational after-treatment.

It is a simple procedure to state the characteristic signs and symptoms of frontal, temporosphenoidal or cerebellar abscess formation. When, however, increased intracranial pressure, spreading cerebral edema or localized meningeal sepsis jumble the entire abnormal picture into a jig-saw puzzle of contradictions, a clear mind with balanced judgment is most vital. When the symptoms of temporosphenoidal or cerebellar abscess are clear and distinct, the diagnosis may be definite. When the converse is true, a carefully taken history may be the determinant of success.

The characteristic focal signs of brain abscess may be absent, and the diagnosis of the condition rest entirely on the presence of general signs and symptoms of intracranial abscess formation. Here, drowsiness with a history of vomiting may clear away the fog of uncertainty resulting from the associated secondary meningitis.

The presence of sinus thrombosis always points to the posterior fossa as the probable site of the brain lesion. In all cases of sinus thrombosis, aseptic torcular or even aseptic cavernous sinus thrombosis resulting from progressive extension of the thrombus may produce signs and symptoms due entirely to obstruction of the cerebral venous flow. In all cases of this kind, extension of the sterile distal end of the clot to the torcula or even to the cavernous sinus may produce signs and symptoms of severe intracranial pressure. Two cases of this type in which the distal extension of the thrombi remained sterile and produced marked venous obstruction are worthy of consideration:

REPORT OF CASES

CASE 1.—L. S., a girl, aged 9, was admitted to the Massachusetts Eye and Ear Infirmary on Jan. 28, 1927. Four weeks

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before admission, she had a cold in the head with pain and discharge in the left ear. A simple mastoidectomy was performed two weeks later, followed in two days by jugular ligation on the left side. Within the next week signs of increasing intracranial pressure appeared, including changes in the fundi, vomiting and bilateral paralysis of the external rectus muscles.

On admittance to the Massachusetts Eye and Ear Infirmary, the middle ear was dry, and the mastoid and jugular wounds were completely healed.

The patient had bilateral palsy of the external rectus muscles and slight facial weakness on the right side. A papilledema of 4 D. in the right eye and 6 D. in the left eye was present. The fields of vision were normal, and vision was 15/20 in each eye. The spinal fluid was normal on examination, but was under a pressure of 700. The pressure was reduced one-half, and repeated punctures were made every forty-eight hours for two weeks, and then every four days for another fortnight. On March 16, the pressure had remained at 150 for two weeks, and all the symptoms had entirely cleared up. The papilledema and palsy were no longer present, and the fields of vision were normal.

CASE 2.—Lewis T., aged 15, was admitted to the Massachusetts Eye and Ear Infirmary on Sept. 30, 1932, complaining of pain in the left frontal region and tenderness of the left parotid gland, with slight increasing exophthalmos of the left eye and edema of the left conjunctiva for the past two days. The onset of the present illness was Sept. 16, 1933, when the patient complained of severe pain in the right frontal region and right aural pain accompanying a slight cold in the head. Within twenty-four hours a purulent discharge appeared in the right ear, and persisted to date. During the night of September 22, the pain became very severe, and the patient vomited several times. The temperature was 100 F. The following day the patient was drowsy and entered the local hospital.

During the next six days the patient vomited twice daily, usually accompanied by nausea, and the temperature was septic, ranging from normal to 103.6 F. On September 27, the pain in the frontal region had developed into a general headache, which later localized in the left side of the head and finally in the left eye. During this time, the white blood count ranged between 9,400 and 11,600. The spinal fluid on two occasions was practically normal.

A simple bilateral mastoidectomy had been performed in June, 1925, following scarlet fever, and a secondary operation on the left mastoid two and one-half years later. Neither ear had discharged during the past twenty months. When the patient entered the Infirmary on September 30, the white blood count was only 10,700 with 74 per cent polymorphonuclears and 24 per cent lymphocytes. The blood culture showed no growth in forty hours, and the spinal fluid examination gave entirely negative results except that the Ayer-Tobey test appeared to show a slight partial block of the right jugular vein. Examination of the eye by Dr. Frederick Verhoeff showed ptosis and slight exophthalmos of the left eye, with limitation of motion outward and upward.

The patient had a septic temperature for a week, but it was accompanied by marked improvement in the condition of the eye and a constant decrease in both the white blood cells and the polymorphonuclear count. On October 13, the temperature had been normal for five days, and the chemosis and ptosis of the left eye had nearly disappeared. There was little, if any, limitation of motion in either eye. The discharge from the right ear had practically cleared up. There was still some blurring of the left disk. The patient was discharged to his home on November 2.

DIAGNOSIS

The diagnosis of abscess of the frontal lobe is still in the "dark stages." Edema of the upper eyelid and of the tissues over the frontal sinus points to osteothrombophlebitis of the underlying bone. Hence osteomyelitis of the skull and frontal lobe abscess are distinct possibilities. The presence of such edema in an acute infection of the frontal sinus, coupled with headache, slow pulse and vomiting, suggests involvement of the frontal lobe. The additional signs of drowsiness, euphoria, convulsions and contralateral central facial paralysis, with or without weakness of the arm fix that diagnosis. Edema over an infected frontal sinus is equal in importance to edema over the emissary vein in mastoiditis. It is an indication of thrombophlebitis of a neighboring vessel. It is announcing the presence of osteomyelitis, or brain abscess or both. Repeated roentgenograms will rule out a diagnosis of osteomyelitis, and if edema appears about a week after the onset of the infection of the frontal sinus, or if a periosteal abscess is found, it is of more serious concern. In such cases, the posterior wall of the frontal sinus should be carefully examined and removed. The discovery of an extradural frontal abscess practically announces the presence of an accompanying abscess of the frontal lobe. In several of the cases of frontal lobe abscess at the Infirmary, the inner frontal wall of the frontal sinus was intact, yet not only was the dura affected, but a fistula was present.

When abscess formation is present in the left temporosphenoidal lobe of right-handed persons and vice versa, a sound memory aphasia may be present. When such an abscess develops in a silent temporosphenoidal lobe, a quadrantic homonymous hemianopia, or a contralateral hemiparesis or lower facial weakness may determine the diagnosis. Paralysis of the orbicularis oris of hypoglossal origin can easily be differentiated from that of the central facial type.

A nonreacting labyrinth with signs or symptoms of intracranial involvement also favors the diagnosis of a subtentorial lesion. If headache and increased temperature without pain in the retro-orbital region occur during convalescence after complete exenteration of the mastoid in a person with a nonreacting labyrinth, any of five types of inflammation of the posterior fossa is possible.

Empyema of the saccus endolymphaticus, infection of the lateral cisterna and localized arachnoiditis are difficult to differentiate. Their definite reaction is a localized meningitis. When a definite diagnosis is unattainable, the method of procedure used at the Infirmary should be considered. The area of the saccus and the meatal cisterna is explored. If a focus of active infection is not obtained, the study of the patient's general appearance, temperature curve, white blood count, spinal fluid picture and reflex response will usually point out the source of the inflammation. The dull, stuporous patient with cerebellar abscess, with eyes deviated away from the lesion, lying curled up in the bed, contrasts sharply with the anxious, irritable meningitic patient, or with the bright, animated thrombotic patient. The normal or subnormal temperature curve of the person with brain abscess is as characteristic as the continually high temperature level in meningitis or the saw-tooth septic form in cases of infected sinuses. The very high white blood count singles out spreading meningeal suppuration from the other two lesions. The spinal fluid picture and the reflex responses of the same lesions have similar distinct marks of differentiation. The caloric test will not only inform one of the viability of this labyrinth, but will at times differentiate between supratentorial and subtentorial lesions. The presence of severe vertigo and vomiting after labyrinthine stimulation always favors a diagnosis of supratentorial involvement.

Abscess of the frontal and the temporosphenoidal lobe may contain gas. This is demonstrable by roent-

genograms and localizes the abscess. The gas is always under pressure equal to the intracranial pressure; hence, when it escapes through the exploratory needle, it usually fills the operating room with its fetid odor. Air can enter a capsulated abscess after exploration, and at times leaks into the subdural space.

TREATMENT

Injection of iodized poppy seed oil 40 per cent has its place in the after-treatment of the capsulated abscess. In recent or noncapsulated brain abscess, there is danger in its use. At the Infirmary, therefore, it has been reserved for those cases which have not progressed favorably. If headache with increased temperature or other questionable sign or symptom of imperfect drainage appears, its use may make clear that the drain is not in proper position and is outside the capsular wall. Thus it is a gage of the success of the drainage of the abscess. It has shown in several cases how easily recurrence can be favored by imperfect collapse of the abscess walls, and thus demonstrates that at least many of the cases of multiple otitic brain abscesses are satellitic in origin. Apparently the capsulated abscess wall tolerates it. Roentgen evidence of a residue of iodized oil in the capsule of an apparently healed brain abscess has been seen years after the injection.

Capsulated brain abscess is found most frequently in the temporal lobe. Abscesses of the frontal lobe have in many cases a thick lining membrane. Both acute and chronic primary infection may give origin to the formation of brain abscess without any lining membrane, the so-called noncapsulated abscess. Acute cerebellar abscess is rarely capsulated. The treatment of the noncapsulated abscess with its walls of infected and necrotic brain tissue has not been satisfactory. The capsule of the abscess is important, not only as a barrier against extension directly, but indirectly through the vascular or perivascular route.

The use of the filiform drain, the Lemaitre method, has been successful in one of the cases at the Infirmary. In other cases, results were satisfactory for a time, and then extension or insufficient drainage occurred. Capsular formation in these cases was not a question of time only. Other factors must play an important part in such localization. Deep abscesses will always have a much higher mortality than the superficial type. Complete collapse of the walls of the abscess, as shown by injection of iodized oil is of favorable omen.

The ordinary procedure at the Infirmary is reviewed in the hope of stimulating its improvement.

In cases of acute frontal sinusitis with probably frontal lobe abscess, a vertical incision in the median line joining the horizontal Killian incision enables the scalp to be sutured back, exposing the frontal bone. The anterior bony wall of the frontal sinus is then removed. The posterior wall of the frontal sinus is always carefully examined for exposed dura. The posterior wall of the sinus and adjoining frontal bone is then removed. In about 50 per cent of frontal lobe abscesses, diseased dura or a small dural fistula is present; the tip of a small, number 14 catheter is gently inserted for drainage and immediate relief of pressure symptoms. Either of two methods of after-treatment is now possible. The first method includes the dilation of the fistula every forty-eight to seventy-two hours by the insertion of a suitable larger catheter until a number 24 catheter drain is accepted. Several persons have recovered with such treatment only. In other cases, it was hoped that the time element might be thus obtained for capsular formation. In the latter type and in frontal lobe abscess adjacent to a chronic involvement of the frontal sinus, the removal of a cone of cerebral tissue reaching to the capsular wall by means of the radio knife and loop of Bovie has been the method employed. It permits the use of the larger size of the Mosher wire gauze drain. The drain can be placed more accurately with little trauma or hemorrhage.

It is safer to encircle the exposed dura with diathermy. A crucial incision is made in the dura to ascertain whether a superficial abscess or flat arachnoid lake is present before exploration is done for a deeper abscess. When the wire drain is suitably placed, various aids, such as rotation of the head, gravity, lowering of the top of the table and suction, may be employed to assist the cerebral pressure in promoting drainage and obliterating the abscess cavity. The formation of a fistulous tract about the drain to the abscess cavity makes the capsular wall extend to the surface of the brain. Thus the method used at the Infirmary approaches in a degree the unroofing operation of King. The drain, if in proper position, is allowed to remain undisturbed for about four weeks. The scalp sutures are then removed and the brain permitted to expel the drain gradually. During this period of drainage, little trauma due to manipulation of the drain is transmitted to the walls of the abscess. Hence, the chance of extension of infection through venous thrombosis of the capsular wall vessels is greatly lessened.

In abscesses of the temporosphenoidal lobe, approach through a subtemporal decompression has grown greatly in favor. In moribund patients with a sclerotic mastoid, it is the best method. An extended approach through the mastoid has given the highest average of recoveries. Here, as in frontal lobe abscess, granulations on the dura or exposed dura guide one to the meningeal or intracerebral abscess in over 50 per cent of cases. Here, the meninges are well walled off. Here, a fistulous stalk opens at times. Here, the abscess is frequently near the cortex.

In the treatment of cerebellar abscess, as in abscess of the middle fossa, there is some question as to the avenue of approach. If symptoms or signs of labyrinthine involvement preceded those of cerebellar infection, the paramastoid route through Trautmann's triangle, with, at times, obliteration of the lateral sinus, must be considered. When the abscess is secondary to involvement of the sinus, drainage through the inner wall of the sinus has been the customary procedure at the Infirmary. Examination of the inner wall of the sinus may demonstrate a possible lead or a thrombosed plug in a small venule. If exploration of the mastoid cells posterior to the sinus reveals the presence of an extradural abscess, this area of protective meningeal adhesions should be used.

The importance of deciding which of these three avenues has a given area of meningeal protection may mean the difference between success and meningitis.

There is in the school of the present day one group favoring larger and larger drainage openings, while another is using repeated puncture and suction. Rubber drains of fine caliber are favored by the latter group.

The ideal treatment of a brain abscess would be to remove it in toto. This has been successfully accomplished; but the surgical shock, the encephalitis, the hemorrhage and danger of infection from the stalk, if present, or from the diagnostic puncture, or from rupture of the capsule, are insurmountable obstacles in the

way of its success. Hemorrhage into the operative cavity may account for the sudden death in these cases weeks after an apparently successful convalescence. Partial removal of the wall of the abscess by unroofing it, with herniation, greatly decreases the danger of the removal in toto.

The Dandy method of repeated tapping of the brain abscess has many points in its favor. It relieves the excessive intracranial pressure for a time and hence furnishes the time factor necessary for proper capsulation of the abscess. One must be open-minded and let the emergency guide the course. All drainage is for the purpose of emptying the abscess cavity, so that the intracranial pressure will obliterate it.

ABSTRACT OF DISCUSSION

DR. ALFRED W. ADSON, Rochester, Minn.: It may not be amiss to reemphasize two phases of this subject: first, the surgical indications; second, the surgical treatment. In selecting the time to evacuate a brain abscess, one should remember that the condition is not unlike other inflammatory processes and that drainage is most effective when immunity has been established. Every brain abscess passes through three stages: the encephalomeningitic stage, encapsulation, and recovery or fatality. Recovery may take place spontaneously or by surgical drainage, and death, by rupture of the abscess into the ventricular system. During the first two stages, supportive measures are employed: rest in bed, nourishing diet, ice bags and cool sponges for fever; spinal drainage, and hypertonic solutions to control intracranial pressure. This period usually continues for two or three weeks. When encapsulation takes place, the septic temperature subsides. Leukocytosis recedes to 12,000. Neurologic symptoms likewise become less diffuse and those that remain suggest a localized cerebral lesion. If the spinal fluid cell count has been increased, it will also return to normal. Small abscesses have been known to heal spontaneously. The pus becomes inspissated and the capsule contracts to form a fibrosed mass. In evacuating an abscess one must seek dependent drainage, with as little trauma to the brain as possible, and avoidance of surface contamination. This is accomplished by performing a small decompression over the abscess, fixing the meninges to the cortex with catgut sutures and electrical coagulation of the margins. The abscess is partially drained with a brain cannula, after which the capsule is incised along the cannula. The capsule is held with a bivalve speculum with lateral flanges to prevent the cortex from following away from the skull. The remaining pus is evacuated, the cavity is explored with an illuminated retractor, necrotic tags are removed and lateral pockets are thoroughly cleansed. Then two rubber tube drains and two strips of iodoform gauze are inserted; the gauze is packed loosely about tubes and into pockets to prevent sealing of recesses, which might cause recurrences. The gauze packs prevent falling of the capsule and retraction of the brain from the skull. The gauze drains are removed slowly over a period of a week, allowing the capsule to contract and form a sinus around the tubes. The tubes are likewise shortened during the second and third weeks, thus permitting granulation and obliteration to take place from the dependent regions first. Sterile abscesses might be effectively drained by repeated aspiration, but even then recurrence can take place. Surgical recovery and prevention of recurrence are achieved by waiting for encapsulation and the development of immunity with thorough, adequate and continuous drainage.

DR. R. EUSTACE SEMMES, Memphis, Tenn.: The general principles to be followed in handling brain abscess, that is, waiting for encapsulation to take place, and adequate and sufficiently prolonged drainage with the least possible damage to the brain, do not seem to be open to debate. The difficulty arises when the demands of the patient, the abscess and the brain conflict. An abscess may be present in a lobe of the brain without giving local signs. Whether an abscess is present at all is frequently doubtful. It is necessary, therefore, to employ the simplest method, in the beginning at least. For this reason I have adopted the plan of making only a perforator and burr opening under local anesthesia, removing a small circle of dura with the electrocoagulation needle, through which a blunt ventricular needle is inserted. When the abscess capsule is encountered and its depth is measured, the point is pushed in and the needle is allowed to drain into a glass tube connected to the needle, where it may be observed and from which a smear can be made for immediate microscopic examination. If the pus contains no organisms I content myself with simple evacuation, to be repeated subsequently if indicated. If organisms are present, a metal sleeve is slipped over the needle, which enables one to insert a small piece of rubber tubing through the capsule without losing it. This simple and safe procedure is particularly applicable to deep abscesses, small abscesses and those in important brain areas. Large superficial abscesses and those in silent areas are, no doubt, more effectively drained by the procedure described by Dr. Cahill or that described by Dr. Adson. Unfortunately, many brain abscesses do not become encapsulated or the intracranial pressure rises to a dangerous point in spite of the usual methods of controlling it; or, in spite of drainage by any of the known methods, a spreading encephalitis or complicating meningitis proves fatal. On the other hand, I can recall two patients who recovered from large abscesses of otitic origin which contained numerous streptococci and had generalized septic meningitis.

DR. W. JAMES GARDNER, Cleveland: I was glad to hear Dr. Cahill stress the occurrence of torcular thrombosis. It is a diagnosis that is often overlooked. Many cases of so-called meningismus, or otitic hydrocephalus, really are cases of thrombosis of the torcular or of the longitudinal sinus. The term meningismus is merely a name coined to camouflage one's ignorance of the true state of affairs. When a spinal puncture is performed in such a case, an increased volume of clear spinal fluid escapes. It is therefore customary to say that there exists an increased amount of fluid in the cerebrospinal fluid spaces. This, however, does not necessarily follow. The large amount of fluid escaping on spinal puncture may be due to increased pressure and not to increased volume. In three cases in my experience in which cerebrospinal fluid was replaced with air for the purpose of encephalography, the total volume of the cerebrospinal fluid was not increased although as much as 60 cc. of fluid could be quickly recovered in the course of a simple spinal puncture. The term otitic hydrocephalus as applied to such a case is an actual misnomer. In regard to the use of iodized oil in brain abscess, I have rather hesitated to use nonabsorbable material in an infected field. If a roentgenogram of the abscess cavity is necessary, I prefer to irrigate the cavity with sodium iodide or perhaps introduce a small amount of air. In cases of encapsulated brain abscess in which the localization is in doubt, I feel that encephalography is a perfectly safe procedure. As regards the treatment of abscess, I am in favor of repeated tapping, especially in long-standing cases, rather than of drainage.

DR. HARRY P. CAHILL, Boston: I wish I could have had the good results that Dr. Adson had. In following up the cases I found several in which for many months or longer the patient appeared to be cured when a sudden death took place following so-called uremic coma. I presume that in these cases a complete collapse of the abscess cavity did not occur and that a hemorrhage had probably taken place into the old abscess cavity. I do not believe that packing the cavity would in any way assist the intracranial pressure in obliterating the cavity. If there is a sufficiently extensive fibrosis of the capsular wall to prevent the intracranial pressure from producing a collapse of this wall, packing the interior of the cavity certainly would not assist it. The capsular wall of the otitic brain abscess is thicker and more fibrous than the wall of the metastatic brain abscess. I have also seen cases in which there was not time to wait for the abscess formation to fulfil the demands of perfect localization. I remember one temporosphenoidal abscess in particular in which the patient became unconscious while the house officer in the outpatient clinic was taking the history. He showed a blood count of 23,000 with a high polymorphonuclear count in the spinal fluid. I performed an emergency subtemporal decompression, drained the abscess with the Mosher wire gauze drain, and presented the patient last year at our sectional clinic, nine years after the first operation.

FETAL RISKS IN THE FIRST STAGE OF LABOR FROM UMBILICAL CORD COMPLICATIONS

CORD DEMONSTRATED BY "AMNIOGRAPHY"

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The emphasis in obstetrics today is centered on the diagnosis of pregnancy,[1] on methods of delivery,[2] on better obstetric care,[3] and on morbidity and mortality statistics.[4] But a discussion of finer obstetric technic and more astute diagnosis for the child is demanded. One such necessary consideration is the effort to explain the death of the fetus during the first stage of labor and the attempt to prevent that death. Complications of the cord, observation and experience have proved to be one cause of death. The diagnosis of a cord complication during the first stage of labor is an achievement in clinical obstetrics.

I have been able to distinguish two groups of cord complicated cases in the first stage of labor. The first group of cases is practically symptomless. The child is fatally asphyxiated from a compression of the cord before the condition is recognized. (This death must not be confused with that due to ablatio placentae.[5] The stopping of the fetal heart is the only evident sign. It usually occurs during the first few pains in the first stage of labor but may occur from a few hours to several days before labor definitely sets in. The following case reports well illustrate the hopelessness of being able to deliver a live child under these conditions.

CORD COMPLICATION CASES IN WHICH THERE ARE NO SYMPTOMS

CASE 1.—Painful contractions began at 2:20 p. m.; the second pain was at 3 o'clock; light painful contractions continued every twelve to fifteen minutes, producing a heaviness in the lumbar region. At 5:30 it was impossible to hear the fetal heart beat. The head was deep in the superior strait. There were active fetal movements as the patient left for the hospital but none after her arrival. The family was informed that the fetus was probably dead, owing, no doubt, to a cord complication, the compression of the cord disturbing the circulation long enough to cause fetal death. Labor was allowed to progress and at 11:30, after the birth of the head, the cord was found to be coiled about the neck in a reverse coil, so that the taut, umbilical portion crossed over the placental portion at the left sternoclavicular joint, where the cord was compressed by the chin. Postmortem examination revealed no other cause of death.

CASE 2.—The patient was allowed to be up and about her room. She was noticing some heaviness only in the upper part of the thighs but no definite painful uterine contractions. When I saw her about an hour after admission, no fetal heart beat was audible. The fetus had not been active since the afternoon of the day before. The fetal head was fixed in the superior strait. I suggested to the family that the cord was probably compressed under the chin and thus the anterior flexion of the fetal head obstructed the cord circulation and fatally asphyxiated the child. At birth, fourteen hours later, the cord, taut from the umbilicus, was found in a reverse coil about the neck with the crossing under the chin, the place of compression. Autopsy did not show any other cause of death.

CASE 3.—The patient had been having preliminary labor pains at recurring intervals for the previous week. In the office, the day before admission, the fetal heart, left, below, was of good tone and the rate was 130. On rectal examination, the head in the pelvis was engaging in the ischial-ramic[6] diameter, the lower uterine segment was obliterated, the cervix was high, posterior, 1 cm. long, hydrated and patulous 1 cm. The activity of the child awakened the patient about 4 a. m. the next day. At 6 o'clock she was admitted, as the uterine contractions were more uncomfortable, recurring every three to five minutes. At 6:30 the fetal heart beat was not audible, in direct contrast to the good heart beat of the day before. It was intimated that the cord had become compressed with probably a reverse coiling or with a loop of the cord. At birth, thirteen hours later, a reverse coiling about the neck was found on the 7½ pound (3,400 Gm.) child with the placental portion of the cord over that of the fetal portion, which was taut from the umbilical end.

The following case is an example of fatal compression of the cord by the fetal extremities.

CASE 4.—Mrs. C., aged 33, an octipara, stated that she was one and one-half months overdue. Her weight was 244 pounds (110.7 Kg.). The abdomen was large but not pendulous, as there was no diastasis recti abdominis. The fetus was large and the head was well engaged in the superior strait. Back to the left, fetal heart tones were audible and the rate was 124 per minute. The birth canal was relaxed, owing to a second degree tearing and an old bilateral laceration of the cervix, complete to the left and half way to the right. The abdomen contained about 5 inches of fat. The child and the uterus occupied practically the whole abdominal cavity, as there was little liquor amnii. The patient refused, not being yet in labor, all advice for relief. The nurse reported fifteen days later that the fetal heart was audible, below to the left, and that the rate was 126 per minute; the patient said that if she could be repaired she would come in in a few days, as she was a little worried. Examination on admission, sixty days overdue, revealed little added information except that now there was no fetal heart sound. On questioning the patient it was found that at 11:30 the night before admission the child moved very freely but thereafter no movement was noticed. It was then assumed that the excessive movements were agonal and that death was caused by a compression of the cord, which stopped the circulation. Labor was induced with solution of pituitary and a 12¾ pound (5,783 Gm.) dead male child was delivered after a tedious birth. The cord was found to be coiled about the right thigh and again behind the right knee, where it was compressed by the left knee, when it coiled about the left calf and again about the right ankle. These coilings used up the entire length of the cord, which was 50 cm. The mother was repaired and recovered uneventfully.

It is to be pointed out that there were in these cases, until the death of the fetus, no previous indications of a cord complication. In order to understand the gravity of cord complications it is to be remembered that reverse coilings, on slipping down over the body of the child, form true knots in the cord, while ordinary coilings of the cord, on slipping down, just add another twist to the torsion of the cord. For the compression to take place it is only necessary that the reverse crossing of the cord be securely caught, for example,

From the Toledo District Nurse Association, Robinwood Hospital and Women's and Children's Hospital.

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1. Aschheim, Selmar, and Zondek, Bernhard: Diagnosis of Pregnancy from the Urine (by Hormone Demonstration), Klin. Wchnschr. **7**: 8-9 (Jan. 1) 1928.

2. De Lee, J. B.: The Prophylactic Forceps Operation, Am. J. Obst. & Gynec. **1**: 34-44 (Oct.) 1920.

3. Standards for Maternity Care, Prepared by Committee on Maternity Care of Children's Welfare Federation and Special Committee Appointed by New York Obstetrical Society, Am. J. Obst. & Gynec. **20**: 133-141 (July) 1930.

4. De Lee, J. B.: Safeguarding Method at Chicago Lying In Hospital, Med. Hosp. **36**: 63-72 (March) 1931. Skeel, A. J., and Jordan, F. F.: A Consideration of Cesarean Section with Survey of 1,047 Cases in Cleveland Registration Area in Five Years, Am. J. Obst. & Gynec. **23**: 172-187 (Feb.) 1932.

5. Williams, J. W.: Premature Separation of the Normally Implanted Placenta in Obstetrics, ed. 6, New York, D. Appleton & Co., 1931, p. 989. Gardiner, J. P.: The Umbilical Cord, Surg., Gynec. & Obst. **34**: 252-256 (Feb.) 1922.

6. Gardiner, J. P.: The Ischial-Ramic Diameter, J. A. M. A. **86**: 161 (Jan. 14) 1926.

between the chin and the chest, as when pressure is exerted by the fundus on the buttocks, forcing the fetal chest against the chin, which remains stationary, owing to the resistance the fetal head encounters when driven against the resistant, undilated lower uterine segment. If this position is retained sufficiently long, death ensues. It is the 100 per cent mortality rate in such cases that gives grave concern. So unrecognized are the symptomless coilings in this first group of cases and so sudden is the fetal death that, at the present time, it is impossible to expect to save the life of the child by any method of delivery; yet it is not inconceivable to believe that if it was recognized that the fetal cord was being compressed and if delivery was immediately carried out, the child might be saved.

CORD COMPLICATION CASES IN WHICH THERE ARE SYMPTOMS

The second group of cord complicated cases in the first stage of labor includes those which do show symptoms. The prognosis for this group is more hopeful, since there is a chance for the obstetrician to diagnose the cord complication and to save the life of the child. There are three cardinal symptoms that suggest a cord complication: delay in the progress of labor, disturbance in the fetal heart rate and a malposition of the fetus. (Pain at the placental site, a definite symptom due to traction, occurs later in the first stage and in the second stage of labor.) There may be, in a single case, all or only one of these symptoms.

Labor is a progressive process and does not normally admit of delay. Any delay in labor is an important symptom and must never be ignored. Delay may mean a cord complication, a dry labor (oligohydramnios), a disproportion (bony or soft parts) or thick unruptured membranes, the importance to the child being in the order given. The latter three symptoms, oligohydramnios, disproportion and thick membranes, can be so easily recognized that they allow a diagnosis of a cord complication by the process of elimination; at least a tentative diagnosis can be made that the cord is so coiled about the parts of the fetus as to interfere with the free progress of labor. This symptom has great possibilities for study.

Variation in the fetal heart rate is the most urgent symptom in the process of delivery.[7] I have found it to be frequently associated with a cord complication. To understand fully the mechanism of the fetal cardiac variation caused by a cord complication, it is necessary to recognize the importance of muscle tone in involuntary muscles (of which the uterus is the largest). During labor the action of the uterine involuntary muscle is exaggerated. It has been pointed out that the uterus is contracting and relaxing during the entire period of pregnancy, indeed to a lesser degree at all other times as well. The contractions and relaxations can be observed by the sense of touch and even in some cases by the sense of sight before the onset of labor, in the alternate hardness and softness of the uterine muscle. While these contractions are harmless in themselves, it sometimes happens that a portion of the cord is imprisoned and compressed until there is a definite oxygen want when the fetal movements are increased, stimulated by the struggle for oxygen, and the cord is usually released and the circulation restored. But if the compression is not relieved, as fortunately happens rarely (it is in cases of extreme torsion of the cord at the umbilicus that this fatal accident occurs, earlier in pregnancy than do the difficulties discussed in this paper), and if the uterus contracts synchronously, increasing the compression long enough and keeping the child from recovering consciousness sufficiently to extract the cord from the compression (a fatality which occurred in the first four cases reported), the child will die from asphyxia due to failure of cord circulation.

This compression does not, however, take place as often as one might think, for the pulsating vessels tend to assist the moist cord to squeeze out of the trap. Another fortunate provision of nature is that the vessels of the cord are longer than the cord itself. Unless the cord is put on excessive tension, the vessels are still not stretched to compression and the blood flow of the cord is not greatly diminished. As is well known, a knot in the cord rarely causes trouble, for it readily slips on itself because of the presence of the jelly of Wharton. But when there is a coil about the neck, the surface of which is more resistant than the surface of the cord, particularly if there is little vernix caseosa and little jelly of Wharton, it slips only under increased traction; with increased traction there is a greater chance of compression. The fetal heart rate is a good criterion of the well being of the fetus. The mother's statement that she has recently felt life is not always dependable, but feeling the movements while auscultating the abdomen is a sure sign that the fetus is still alive. In the examination of the fetal heart (often a difficult task) it is of great assistance to take simultaneously the maternal pulse. The actual value of the interpretation of the fetal heart rate is not sufficiently appreciated in defining the gravity of active cord complication.

A malposition is the third symptom of cord complication which may draw attention to the fact that the fetus is in danger. If there is no disproportion of the soft or bony parts, tumors, fetal or maternal, or fetal monstrosities, a cord complication should be definitely suspected in malpositions. Finding the fetus either fixed or limited in motion in an abnormal position is a probable indication of cord complication. The cord may admit of some movement and an attempt may be made at conversion into a head position; the attempt will proceed just so far, but when the force is removed the part will gradually return to its original position. (It is to be remembered that when there is a small or lessened amount of liquor amnii, the irritability of the uterus may be so active as to cause it to contract down on the fetus, thus permitting little correction in the position.) But, when each attempt at correction is accompanied by a disturbance of the fetal heart rate, a cord complication must be inferred.

TREATMENT

The choice of treatment to be followed in cord complicated cases is dependent on the diagnostic observations. Delay in the progress of labor (it cannot be said that the ideal treatment for delayed labor is to be satisfied with complacently giving a sedative and dismissing the case for the time being), variation in the fetal heart rate and persistent malposition of the child, the amount of liquor amnii, the degree of hydration of the cervix and the dilatability of the perineum will influence the

7. Willibald, W.: Fetal Heart Sound Changes During Labor: Causes and Effects on the Child, Ztschr. f. Geburtsh. u. Gynak. **101**: 724-742, 1932.

choice of the method of delivery. It is only rarely that a section must be performed in any cord complication, but, when the indications point to a section, it is to be performed and in time to save the child. My first case in which a diagnosis of cord complication was made but the courage of my convictions was not strong enough to carry out my purpose of doing a cesarean section until it was too late is still vividly in my mind:

CASE 5.—Mrs. F., aged 20, a primipara, had recurring painful uterine contractions for five hours before admittance. The pelvic measurements showed a roomy pelvis. The cervix was not dilated and was 1.5 cm. long. The position of the fetus was transverse, with the head to the right above the anterior superior iliac spine, and the buttocks were to the left. There was an average amount of liquor amnii. The fetal heart at the umbilicus was of good quality and its rate was 135. The membranes were intact. The position could not be changed by reasonable attempts and if persisted in there was slowing of the fetal heart rate. A cord complication was diagnosed. After three hours of increasingly strong uterine contractions there was no change (certainly a delay in the progress), and the fetal heart rate was 130. It was decided that if there was no change in another three hours a cesarean section would be performed and the order was given to prepare for it. The family was acquainted with the decision and accepted the suggested method of treatment. One hour later, even though an examination had been made every five minutes, the nurse reported that the fetal heart beat was inaudible. The labor was now allowed to proceed and ten hours later a dead female child was born. The taut cord was deeply coiled about the neck and ran around the neck again posteriorly, where it coiled about the opposite arm, then to the placental attachment. A tentative effort was made in this case to perform a section to save the child.

The case well illustrates two points: the one that, if there is any delay in the continuous progress of labor, it ceases to be one of average labor and becomes one in which the attitude of watchful waiting changes to that of active intervention, which may mean that an immediate section is necessary to save the child. The other point is that after fetal death the need for a rapid delivery may be immediately over. It is well known that the dead fetus causes less trouble in delivery than a live child. The blood pressure and the general tone being reduced, the child becomes smaller and more compressible. The following case reports demonstrate the significance of the symptoms of fetal heart disturbance and the urgent necessity of immediate action in the emergency:

CASE 6.—A woman, after a diagnosis of a cord complication was made, was prepared for a tentative section. Labor was allowed to continue, however, for a time. Because of the failing fetal heart, a cesarean section was performed and fortunately a living child was secured.

CASE 7.—Mrs. R., a primipara who was at term, entered labor with the fetus in a transverse position, maintained in spite of reasonable attempts at conversion into a head position. The pelvis was roomy, there was a moderate amount of liquor amnii and there were no abnormalities. While pressure was exerted on the head, the fetal heart beat decreased in rate. At one time it went as low as 110 per minute; as soon as the pressure was removed the rate went up as high as 160, later returning to 140. A cord complication was suggested. The patient was prepared for a tentative section but was permitted to continue in labor. Later the fetal heart began to fail; there was no cervical dilatation; the membranes were intact, and the position of the fetus had not changed (delay in labor). A section was done immediately. The cord with a coil about the neck was taut from the placental insertion; the fetal portion ran from the umbilicus under the perineum, up the back to the neck, there completing the coil. The length of the cord was 55 cm. The deeply asphyxiated child was resuscitated with difficulty. The recovery of the mother and the child was uneventful.

Though case 7 was observed as closely as possible, it is seen that the section was delayed almost too long for the safety of the child.

The following case report illustrates a cord complication retaining the fetus in a breech position, which complication was diagnosed and demonstrated at operation:

CASE 8.—Mrs. B., aged 21, a primipara, was in good health and weighed 200 pounds (90.7 Kg.). Pelvic measurements showed a moderately roomy pelvis. There was a moderate amount of liquor amnii. The examination at term still revealed a breech position with the buttocks at the superior strait. The fetal head was in the left hypochondrium, and the back was to the right. The fetal heart was heard 2 cm. above the umbilicus. Several efforts had been made to convert the head into a vertex presentation, but it was still impossible under reasonable manipulation to bring the head to the transverse position. On cessation of the effort, the head quickly resumed its original position. The fetal heart was 130 but slowed down to 110 during the trial of conversion. I was of the opinion that the child was so entangled in the cord that the movements were greatly limited: the family was informed that the child could possibly be born, but I felt that the chances of a live child were about 50 per cent through the birth canal, and probably 100 per cent by cesarean section. The section was chosen. As the case was perfectly clean, labor not having started, the high operation was done, so that the cord difficulty could readily be of access. When the membranes were ruptured, the cord was seen about the neck with no slackness; the head was delivered; the cord ran from the neck to the left axilla and coiled high about the right arm to the placenta. The taut cord, interfering with further delivery, was cut and the child delivered. The cord was 60 cm. long.

The condition was demonstrated to those about the operating table. In this case there was more than usual risk in allowing the birth to take place by the natural birth route.

It is not good or reasonable obstetric practice to advocate a section in all breech cases that present a cord complication, yet there is more than the usual possibility of the cord being compressed in such breech deliveries than when there are no entanglements about the various fetal parts. The obstetrician should not be too radical [8] or too conservative,[9] but ought to stand on the middle path. When the cases just recorded presented a moderate amount of liquor amnii, a delay in the progress of labor, no demonstrable abnormalities to prevent the correcting of the malposition, and a slowing of the fetal heart rate on the attempts at turning, it was concluded that the fetuses were dangerously entangled in the umbilical cord and that their chances of surviving the natural birth route were markedly decreased.

It is with cumulative enthusiasm that a new help in obstetrics is gradually being developed. The impossibility of being able to see its difficulties has been one great handicap in the practice of obstetrics. It is now becoming possible to visualize some of the problems that confront the obstetrician. The introduction of roentgenography into the field of obstetrics has great possibilities and, without a doubt, will revolutionize both the teaching and the practice of the art. Though the roentgenogram has its limitations, yet, once the value of visualization is realized, the obstetrician will be able to demonstrate his skill in delivery.

8. Williams, J. W.: The Abuse of Cesarean Section, Surg., Gynec. & Obst. **25**: 194-201 (Aug.) 1917.
9. Reynolds: Circumstances Which Render the Elective Section Justifiable in the Interest of the Child Alone, Am. Med. **2**: 400, 1901.

"Amniography"[10] (and I accept the name given by Menees) consists of injecting from 10 to 15 cc. of some opaque solution, skiodan or strontium iodide, directly into the amniotic sac and after one-half hour (time for distribution) a roentgenogram is taken. In the roentgenogram, the cord as well as the position of the placenta can be outlined, and at times the sex can be made out. To be able to trace the cord in a cord-complicated case encourages one to proceed with more confidence in one's outlined method of delivery. The roentgenogram is a permanent record, which permits checking back on the technic of delivery in a way not before possible. I have used it now in a series of eight cord-complicated cases. The value of amniography in a difficult case is brought out in the following report:

CASE 9.—Mrs. Y., a primipara, was at term, with the fetus in an inconvertible breech position. Attempts at turning succeeded in moving the head about 45 degrees; it would return to the original position immediately and if the effort was persisted in it caused a disturbance in the fetal heart rate. There was little liquor amnii. A serious cord complication was suspected and consent to a section was secured, should it be necessary. The patient was permitted to fall into labor. "Amniography" was used. The roentgenogram showed the cord running up around the back. The placenta was located and the shadow of the scrotum was made out. Labor progressed; the lower uterine segment was obliterated and the cervix was dilated 0.5 cm. There was as yet no disturbance of the fetal heart rate. Since the cervix was well hydrated and the perineum easily dilatable, the fetus descended and retracted between the uterine contractions, the fetal heart rate appeared undisturbed and the roentgenogram showed no entanglement about the neck or extremities, it was felt that, in spite of the traction of the cord, the child could be born by breech presentation. The attempt succeeded. The child was breathing before the birth of the aftercoming head, as air was permitted to reach the mouth by way of the vagina. The cord was short, 42 cm., and had been squeezed up off the body of the child and no doubt the rotation of the fetus allowed the slipping up of the cord. At birth there was no visible demonstration of a cord complication except the shortness of the cord. I have learned that this negative evidence is untrustworthy. In this particular case the roentgenogram showed the cord running about the body.

The visualization of the umbilical cord by means of "amniography" gave a feeling of confidence not before experienced. It is reassuring when the postoperative diagnosis coincides with the preoperative. The more one becomes acquainted with the symptoms of cord coiled cases the more accurately will preoperative and postoperative diagnoses agree, and greater aid will be rendered to both the child and the mother.

CONCLUSIONS

Cord complications too frequently during the first stage of labor cause fatal asphyxiation of the child, for which no blame can possibly be laid to the conduct of labor.

The symptoms of cord complications are: delay in the progress of labor, disturbance in the fetal heart rate and retained malposition of the child.

Not every cord complication means a cesarean section. But when the definite need for it has been demonstrated, the section must be done in time.

"Amniography" has a place in diagnosis, as it is an aid in demonstrating a cord complication. This verification gives courage to pursue the outlined treatment.

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10. Baumann: München. med. Wchnschr. **77**: 1148 (July 4) 1930. Menees, T. O.; Miller, J. D., and Holly, L. E.: Am. J. Roentgenol. **24**: 363 (Oct.) 1930. Ehrhardt, K.: Zentralbl. f. Gynäk. **56**: 847 (April 2) 1932. Staveley, Dulcie: Brit. M. J. **1**: 937 (May 21) 1932. Kerr, J. M. M., and Mackay, W. G.: Edinburgh M. J. **40**: 21-32 (March) 1933.

ABSTRACT OF DISCUSSION

DR. WILLIAM J. DIECKMANN, Chicago: I have always insisted that the fetal heart tones must be counted every twenty minutes during the first stage of labor and every five minutes during the second stage, and that the rate must be recorded. However, textbooks on obstetrics contain little or nothing about fetal risks or death in the first stage of labor. To determine its importance, I reviewed 1,003 fetal autopsy records which had been collected by Dr. Adair. There were 136 stillbirths, or 13.6 per cent, of 2,000 Gm. or over, in which the cause of death was either a cord complication or unexplained. In four cases the cord was prolapsed, and in nine the cord was coiled round the neck from one to four times. In one case it was round the thighs. Thus, 1 per cent of these stillbirths was caused by a diagnosed cord complication. The remaining 125, or 12.4 per cent, may have been caused by similar conditions. At least, nothing was found at autopsy other than the symptoms and signs of suffocation. The treatment of intrapartum cord compression is of the utmost importance and is as follows: (1) the use of posture—knee-chest, Trendelenburg, or the turning of the patient on one side or the other, and (2) a vaginal examination to determine whether or not the cord is prolapsed, and also the condition of the cervix. The fetal mortality of from 60 to 90 per cent in open and concealed prolapses of the cord demonstrates conclusively that radical intervention is unwarranted for the sake of the baby, and maternal mortality statistics indicate its dangers to the mother. In the first stage, in addition to the use of posture, an intra-ovular bag may be of value. In the second stage, with a completely dilated cervix and the head engaged, an experienced man will deliver with forceps or, with an unengaged head, by version. It is surprising in how many cases the fetal heart tones are slow and occasionally irregular; yet the baby is born alive after a spontaneous labor. Dr. Gardiner reports two cesarean sections performed because of slow fetal heart tones in the first stage of labor. For slow or irregular heart tones in the first stage of labor I have not to date performed cesarean sections. I made Dührssen's incisions or dilated the cervix manually, although I can recall a number of cases in which I was importuned by the house staff to do something when a forceps delivery or version could not be done by them with safety. I believe that we, as teachers, should do no operative procedure that we cannot entrust to a trained resident, much less an intern.

DR. E. L. KING, New Orleans: I wish to add to what Dr. Dieckmann has said regarding the auscultation of the fetal heart tones. I have found that there are a few signs that are of great value in this connection. I notice that immediately after a contraction the heart tone normally is irregular. On the other hand, if the baby is in grave danger from prolongation and undue pressure, particularly in the second stage of labor, there will be a slowing and irregularity of the fetal heart tones throughout the entire period between the pains. If there is a cord complication, such as the cord round the neck, there will be a slowing and irregularity of the fetal heart tone for a period longer than is normal but not for the entire period of the pain. That to me has been of great value in diagnosing cord complications, particularly in cases in which the cord is found to be round the neck. To my mind it has meant that obstetricians should not be in such a great hurry as they should be when the heart tone is irregular and slow for the entire period between the pains. I think that would be of value in the class of cases under discussion.

DR. W. PARKS PHILLIPS, La Grange, Ga.: In a case of fatal asphyxia due to a complete knot in the umbilical cord some 8 inches from its attachment to the baby, this condition was not detected during labor. At delivery I had a dead infant, and on inspection of the cord I found a complete knot, which was drawn sufficiently tight to asphyxiate the baby.

DR. JOHN P. GARDINER, Toledo, Ohio: The position I take in regard to the symptomatology of cord complications has been forced on me by observation and experience. The three symptoms of a cord complication which I have worked out are delay in labor, disturbance of fetal heart rate, and malposition. One can be very suspicious of a cord complication when one finds these three symptoms. It is difficult as yet to explain fetal death. Very little that is pathologic is shown in death due to asphyxia; this fact in itself gives great leeway for varied opinions as to the

etiology. The accumulated evidence is that many of the fetal deaths which are unaccountable are due to asphyxia. It is reasonable to assume that a cord (usually 55 cm. long or longer) mobile and subject to frequent changes of pressure, especially in oligohydramnios, may be compressed, causing fetal death. I sympathize with the doctor who spoke of being unable to find the fetal heart beat. Sometimes ,the difficulty is insurmountable. I stated that, under certain conditions, one cannot be sure that the child is alive unless one feels the fetal movements. One cannot accept the statement of the woman that she feels the fetal movements because she may say she feels them when a fetus is not even present. When one has gotten continuously a distinct fetal heart beat, no matter by what method, it is very difficult to remove the psychologic effect in one's mind and the physiologic effect on one's ear to distinguish at times whether or not the heart is still beating. But when a heart has been beating strongly and regularly and then suddenly ceases, there is grave concern and the simplest method of explaining it is that there is a cord compression. I did not read the case histories included in the paper—three definite histories in which the cord was pinched in a reverse coil between the neck and the chest and was so found at birth, with no traction on the placental side of the cord. The traction was on the fetal side of the cord where the flexion held the cord as it was crossed at the neck until the fetus died. I feel that these cord complicated cases should be more carefully observed; there will then be more definite information in the literature. Matthew Duncan was deeply interested in the study of cord complications, but very few others have followed in his lead.

THE ETIOLOGY AND TREATMENT OF ANEMIA IN PREGNANCY

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Numerous workers [1] have established the existence of a distinct lowering of the hemoglobin concentration in the blood of normal pregnant women. The nature of this "physiologic anemia" and of recovery therefrom has remained confused because seldom have intensive studies been made of the blood of normal women month by month from early pregnancy through and after the puerperium. Such studies [2] show a steady decline in both hemoglobin and red blood cells from early in pregnancy until the end of the second trimester, after which either no further change or a slight rise occurs. However, observations indicate that within ten days of parturition normal women who have had no significant defects of diet or gastric secretion during pregnancy show an abrupt rise of both hemoglobin and red blood cells to essentially the levels held at the beginning of pregnancy. Correlation of these data with known changes of blood volume in pregnancy indicate that this "physiologic anemia" of pregnancy is not anemia at all in the usual sense, but merely hydremia. Furthermore, once the blood volume readjustments of the puerperium are over, no further change of significance occurs during three months post partum.

In contrast to these manifestations it was observed [2b] that the hemoglobin of a group of pregnant women with complete posthistamine gastric anacidity continued to decline in the last trimester of pregnancy and, after blood volume readjustments were complete, remained 18 per cent below the initial level.

In another group of women who had gastric hypoacidity during pregnancy, the same state of affairs was observed with, however, a net lowering of the hemoglobin of only 9 per cent. A fourth group of pregnant women had gastric hypo-acidity and partook of diets low in iron during pregnancy; the average hemoglobin was 14 per cent lower after pregnancy than at the onset.

It is obvious that pregnancy may be a coincidence during the course of any number of diseases which in themselves cause anemia, such as leukemia, infections and cancer. Furthermore, the gravid state may be responsible for hemorrhage, nephritic and eclamptic toxemias and puerperal sepsis, all of which may produce anemia. Disregarding these anemias of known etiology, there remains a large group of patients who develop a severe anemia during pregnancy which has no obvious cause. Two kinds of such anemia are encountered: one hypochromic in character, the other macrocytic (pernicious) in type. The former has all the characteristics of what has been known in the past as chlorotic anemia or simple secondary anemia and for which more recently idiopathic hypochromic anemia has been the term of choice, since it expresses the fact that the reduction in hemoglobin greatly exceeds that of the red blood cells.

Generally, idiopathic hypochromic anemia occurs in persons who have gastric secretory defects and poor diets. When women suffering from these defects become pregnant, not only may a preexisting anemia be much enhanced but severe anemia may develop during the pregnancy. In the hypochromic anemia of pregnancy there is seldom significant alteration in leukocytes or blood platelets, but stained films show small pale erythrocytes. The chief presenting clinical symptoms are pallor, lack of a sense of well being and excessive fatigability. In the very severe cases edema, dyspnea, prostration and syncope may be observed. Rarely is enlargement of the spleen detected.

Thirty patients with this type of anemia in pregnancy were studied,[3] all of whom had severe anemia, with less than 45 per cent hemoglobin (Sahli). Rigorous examination failed to reveal concomitant disease or loss of blood. Since this type of anemia resembled the common hypochromic anemia associated with poor diet and gastric secretory defects, these two factors were investigated. Seventeen of the thirty patients had complete posthistamine gastric anacidity, even when examined after parturition. Ten patients had little or no free hydrochloric acid in the gastric secretion after the usual alcohol test meal, and diminished amounts after histamine stimulation. Two patients only had normal gastric acidity post partum.

With but one exception, all the patients who did not have complete anacidity had partaken of diets poor in iron, not only throughout pregnancy but often over a period of years. Eight of the seventeen patients with complete absence of gastric free hydrochloric acid had partaken of good, if not optimal, diets throughout pregnancy, while the remainder had not had an adequate intake of iron-containing foods. It was thus apparent that either gastric secretory defects or diets deficient in iron-containing foods, or both these factors, were present in all thirty of the patients with hypochromic anemia developing in pregnancy. The relationship of gastric acidity to the absorption or utilization of iron has been discussed elsewhere.[4]

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From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard) of the Boston City Hospital, and the Departments of Medicine and Tropical Medicine of the Harvard Medical School.

1. Bland, P. B.; Goldstein, Leopold, and First, Arthur: Am. J. M. Sc. **179**: 48 (Jan.) 1930. (This reference contains a fairly complete bibliography).

2. (a) Kuhnel, Paul: Ztschr. f. Geburtsh. u. Gynäk. **90**: 311, 1927; (b) Strauss, M. B., and Castle, W. B.: Am. J. M. Sc. **184**: 663 (Nov.) 1932.

3. (a) Strauss, M. B.: Am. J. M. Sc. **180**: 818 (Dec.) 1930; (b) Strauss, M. B., and Castle, W. B., ibid. **185**: 539 (April) 1933.

4. Mettier, S. R., and Minot, G. R.: Am. J. M. Sc. **181**: 25 (Jan.) 1931.

In addition to these disturbances, it is to be remembered that all these women had what is comparable to loss of blood, since all their infants were born with normal amounts of hemoglobin, no matter how anemic the mothers. The building material for the fetal hemoglobin was of necessity derived from the material organism and represented that much loss to the mother.

Treatment of these patients, after control periods without therapy, was uniform. Six grams of iron and ammonium citrate was administered daily. Without exception, and irrespective of whether treatment was instituted during or after pregnancy, prompt regeneration of hemoglobin and red blood cells occurred, with the restoration of the patient to complete health. Furthermore, the infants born to women severely anemic in pregnancy uniformly develop anemia during the first year of life. If the mothers are adequately treated during pregnancy, this does not occur.[5]

Ten patients suffering from the macrocytic (pernicious) anemia of pregnancy were observed.[3b] These patients, usually were more seriously ill than those with hypochromic anemia. They had red blood cell counts of under 2.5 million per cubic millimeter, and, in addition to the symptoms of anemia mentioned under the hypochromic type, marked nausea and vomiting occurred in five and diarrhea in two patients. Fever, without demonstrable infection, abating when antianemic therapy was employed, was observed in nine patients. Soreness of the tongue was present in four patients and splenomegaly in two. Mild combined sclerosis of the spinal cord developed once. All but one patient had had, during pregnancy and frequently prior to it, a distinctly limited intake of animal protein food.

In these women the number of erythrocytes was more markedly diminished than the amount of hemoglobin, resulting in a color index above 1. The red blood cell counts varied from 1.05 to 2.5 million per cubic millimeter, and the hemoglobin from 20 to 50 per cent (Sahli). In stained films the red cells showed moderate variation in size and shape, with oval macrocytes, microcytes and an occasional tailed form. Rarely megaloblasts were observed. Mean corpuscular volume determinations showed a somewhat increased cell size (from 105 to 130 cubic microns), on the average not so marked as in addisonian pernicious anemia. The concentration of hemoglobin in the red blood cells was, however, slightly reduced. The leukocytes and blood platelets were either normal or slightly decreased. A relative increase of lymphocytes accompanied the leukopenia in most cases. The serum color was either normal or slightly more yellow than normal. In five of these patients achlorhydria occurred, in four hypochlorhydria and in one normal acidity of the gastric contents after histamine injection. One patient with achlorhydria, when reexamined two years later, showed normal acidity.

It was therefore apparent that these patients with macrocytic anemia of pregnancy, like those with hypochromic anemia, had both defects of gastric secretion and deficient diets, the latter being chiefly lacking in animal protein.

These patients can be relieved of their anemia with liver or potent liver extract, administered by mouth or by injection, just as in addisonian pernicious anemia. However, once completely well, relapse does not ordinarily occur, as it does in the addisonian type, unless pregnancy again occurs. Practically all these patients had, in addition to the deficiency of the true pernicious anemia type, referred to later, an added deficiency correctable by iron therapy. The loss of hemoglobin to the fetus may well explain this. Experiments[6] pursued over a number of years have shown that addisonian pernicious anemia is due to a failure of a reaction to occur between a stomach factor present in normal gastric juice and a diet factor associated with vitamin B. It has been shown that a lack of the stomach factor alone or a lack of the diet factor alone may result in a failure of this reaction essential for hematopoiesis, and in rare cases it is believed that a failure of absorption may produce the same effect, even though stomach and diet factors are normal. Accordingly, experiments were undertaken to determine whether the same mechanisms of deficiency were responsible for the macrocytic anemia of pregnancy.

It was found that these patients generally had a partial lack of the stomach factor, since the administration of 200 Gm. of beefsteak or 16 Gm. of autolyzed yeast (both rich sources of vitamin B) produced some improvement, as measured by reticulocyte responses, and since greater effects were obtained when, in addition, 150 cc. of normal human gastric juice was administered with the beefsteak or yeast. In one patient experiments showed no stomach factor whatever present during the last ten days of pregnancy, with a moderate amount reappearing within a week of parturition. This patient later showed a partial loss of this factor in the seventh month of a subsequent pregnancy.

These observations, then, indicate that analogous mechanisms are involved in the production of the macrocytic (pernicious) anemia of pregnancy and addisonian pernicious anemia.

Other observations[7] indicate that disturbances of gastric secretion occur to a greater or lesser extent in more than half of pregnant women. In order to prevent the development of anemia in pregnancy it is therefore essential that a diet adequate in iron and in protein be consumed. It may well be advisable in practice to supplement the diet with iron, as is commonly done with calcium.

If the gastric secretory defects are so marked that an adequate diet alone does not suffice to prevent anemia, iron in sufficiently large doses, such as 6 Gm. of iron and ammonium citrate daily, should be prescribed for the hypochromic type of anemia and potent liver extract derived from 300 to 600 Gm. of liver daily for the pernicious type of anemia. If vomiting prevents oral administration, from 2 to 5 cc. of a potent solution of liver extract for intramuscular use, such as No. 343 N. N. R., may be given daily. In very severe cases, and especially if infection supervenes, transfusion of blood in addition to the measures described may be necessary to save the life of the patient until the bone marrow commences to pour out new erythrocytes. Otherwise, blood transfusion is generally unnecessary and may sometimes be dangerous.

CONCLUSIONS

1. The "physiologic anemia" of pregnancy is only the effect of hydremia.

2. The hypochromic anemia of pregnancy is due either to a direct dietary deficiency or to a deficiency conditioned by gastric anacidity, hypoacidity or asso-

5. Strauss, M. B.: J. Clin. Investigation **12**: 345 (March) 1933.

6. Castle, W. B.: Am. J. M. Sc. **178**: 748 (Dec.) 1929. Castle, W. B., and Townsend, W. C., ibid. **178**: 764 (Dec.) 1929. Castle, W. B.; Townsend, W. C., and Heath, C. W., ibid. **180**: 305 (Sept.) 1930. Castle, W. B.; Heath, C. W., and Strauss, M. B., ibid **182**: 741 (Dec.) 1931. Strauss, M. B., and Castle, W. B.: New England J. Med. **207**: 55 (July 14) 1932; Lancet **2**: 111 (July 16) 1932.

7. Strauss, M. B., and Castle, W. B.: Am. J. M. Sc. **184**: 655 (Nov.) 1932.

ciated defects in the presence of the fetal demand for blood-building materials. It may be completely relieved, either during or after pregnancy, by the administration of iron in suitable (usually large) doses.

3. The macrocytic anemia of pregnancy is generally due to a temporary lack in the gastric juice of a specific intrinsic factor, which has been shown to be absent from the gastric juice of patients with addisonian pernicious anemia in relapse. The ultimate complete return of this factor after delivery is hypothecated. In other cases the lack of the extrinsic factor (associated with vitamin B) from the diet may produce similar effects. The macrocytic anemia of pregnancy ordinarily may be completely relieved with liver extract, although iron is frequently required in addition.

4. The similarity of the etiologic mechanism involved in the hypochromic anemia of pregnancy and idiopathic hypochromic anemia in the absence of pregnancy, and in the macrocytic anemia of pregnancy and addisonian pernicious anemia, is pointed out.

5. The development of anemia in pregnancy may best be prevented by supplying the pregnant woman with an adequate intake of blood-building materials.

LEG ULCERS DUE TO THYROID DYSFUNCTION

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The conception of the skin as an organ of the body intimately connected with the other organs and not merely a protective covering is too obvious to need any repetition or emphasis. However, in the studies made of skin diseases, attention has been directed chiefly toward the skin itself and the effect of internal influences has been generally overlooked. Every textbook under the caption of etiology will make a casual reference to metabolic disturbances, influences of the central nervous system, and the importance of the endocrine system; but, from a practical standpoint, little has been done to utilize these systemic changes in therapy. The treatment of cutaneous disorders is still essentially a local problem and very few conditions are relieved by specific internal therapy. Andrews [1] states that, in the obscure field of endocrinology, one finds expressions of glandular dysfunction of the skin more than in any other organ and illustrates this statement by the examples of myxedema, chloasma, and the pigmentation of Addison's disease; but, in view of the great incidence of endocrine disturbances, it is surprising how few cases of skin changes have been reported as due to dysfunction of the hormones. Richter [2] quotes Virchow as pointing out that the stimulative properties of the hormones are nutritive, functional and formative. They work independently in part and in part through the nervous system. They regulate metabolism, govern growth and serve as a stimulus to the preservation of the organic structure. The endocrine glands play a greater rôle in view of these multitudinous functions in the etiology of cutaneous disorders than they are given credit for. For many years glandular products have been used in dermatologic therapy for a great variety of cutaneous ailments, but the amount of therapeutic success has been small and controversial reports have been many.

Of late, the relationship between disturbances of the thyroid gland and peculiar skin changes in the lower extremities has been arousing interest. An odd eruption of the legs following thyroidectomies has been observed by various dermatologists all over the world. Hektoen [3] gives the first reference in the literature of a bilateral, mucilaginous, circumscribed infiltrate of the legs associated with exophthalmic goiter. Dubreuilh [4] first described a myxedematous, nodular infiltration of the skin unassociated with exophthalmic goiter. O'Leary [5] gave the case histories of eight patients observed in the Mayo Clinic showing myxedematous plaques in the legs associated with thyroid disturbances. He termed this condition "circumscribed myxedema." Pillsbury and Stokes [6] reported one case in great detail and exhaustively reviewed the literature. Netherton [7] presented a case before the Cleveland Dermatological Society and Wright,[8] likewise, before the Atlantic Dermatological Conference. Von Lewtschenkow [9] first showed the myxedematous nature of this condition, and Dossekker [10] termed the ailment an atypical tuberous myxedema. Slonimskaya and Glauberson [11] consider the skin changes found in thyroid insufficiency due to a cutaneous dysarthrosis, a part of a general dysarthrosis symptom complex. They report three cases of atypical circumscribed myxedema and speak of twenty-eight more cases recorded in the Russian literature. Kilbourne [12] cites a most unusual case in which an enormous ulcer of seventeen years' duration on the lower part of the right leg healed completely in ten weeks after the daily ingestion of 15 grains (1 Gm.) of thyroid extract. With the exception of Kilbourne's case, I have not been able to find reported in the literature another example of leg ulcers definitely shown to be due to thyroid dysfunction. In view of the comparative frequency of thyroid disturbances and the great number of thyroidectomies done every year, it is surprising that more such cases are not on record. Because of the rarity of this condition, the following case is reported as an example of leg ulcers produced by dysfunction of the thyroid gland:

REPORT OF CASE

History.—A white woman, aged 39, a native of Pennsylvania, had done housework all her life. In February, 1925, she noticed a rash on her legs which itched considerably. The eruption consisted of red, round marks that were slightly raised and extended from her ankles to above her knees. In a few weeks small ulcers appeared, varying in size from a pea to 24 mm. in diameter. Gradually the ulcers spread, coalesced, and became deeper. These extensive ulcerations remained on her legs despite a great variety of therapeutic procedures until her admission into the York Hospital in October, 1931. In August, 1925, she first noted that her neck was increasing in size and she was informed by her physician that she had a goiter. The swelling became larger and persisted until her

1. Andrews, G. C.: Diseases of the Skin, Philadelphia, W. B. Saunders Company, 1930, p. 22.

2. Richter, Wilhelm: Local Myxedema of the Skin in Its Relation to Basedow's Disease, Dermat. Wchnschr. **84:** 7 (Jan. 1), 51 (Jan. 8) 1927.

3. Hektoen, Ludvig, cited by Watson, William: Clin. J. **7:** 93, 1895.

4. Dubreuilh, W.: Fibromies miliaries folliculaires, scléroderme consecutive, Ann. de dermat. et syph. **7:** 569, 1906.

5. O'Leary, Paul: Localized Solid Edema of the Extremities in Association with Exophthalmic Goiter, Arch. dermat. & syph. **21:** 57 (Jan.) 1930.

6. Pillsbury, Donald, and Stokes, John: Circumscribed Myxedema of Skin, Arch. Dermat. & Syph. **24:** 255 (Aug.) 1931.

7. Netherton, E. W.: A Case for Diagnosis, Arch. Dermat. & Syph. **27:** 702 (April) 1933.

8. Wright, C. S.: Scleroderma Circumscripta, Arch. Dermat. & Syph. **27:** 711 (April) 1933.

9. von Lewtschenkow, D. D.: Ein seltener Fall von myxomatosen Hautdegeneration, Monatschr. f. prakt. Dermat. **60:** 239, 1912.

10. Dossekker, W.: Ueber einen Fall von atypischen tuberosem Myxödem, Arch. f. Dermat. u. Syph. **123:** 76, 1916.

11. Slonimskaya, V. M., and Glauberson, S. A.: Three Cases of Atypical Circumscribed Myxedema, Sovrem. psikhonevrol. **11:** 252 (Oct.-Nov.) 1930.

12. Kilbourne, N. J.: Leg Ulcers of Unrecognized Etiology, J. A. M. A. **98:** 1953 (June 4) 1932.

admission to the hospital. She suffered from severe headaches, almost migrainous in character, and had noted a marked thinning and coarsening of her hair. Her menses began at 13 and had always been regular until the last six years, when they became scanty and infrequent, often missing three or four months. She was the mother of eight children, living and well, and had one miscarriage before the birth of her oldest child. Her past medical history was of no consequence. Her mother died of tuberculosis, but she had a father, five brothers and four sisters, living and well and free from any acid-fast infection.

Examination.—The irises reacted normally to light and in accommodation. Her eyes showed no exophthalmos or the other characteristic signs of exophthalmic goiter. The thyroid gland was enlarged symmetrically with a doughy consistency. A bruit was present over the gland. Her skin was dry and shiny, giving an almost translucent appearance. Her hair was sparse and coarse, with a moderate alopecia. On both lower extremities large ulcers were seen, serpiginous in shape, with rolled and hard edges, on a dirt base. These excavations were filled with a mucilaginous exudate. Small scars of healed ulcers were present above and below the active lesions. No varicose veins were observed. Dorsalis pedis pulsations were present in both legs. The heart and lungs were normal. She appeared rather sluggish and slept a good deal during the day.

Fig. 1.—Left leg three days after admission to the York Hospital in October, 1931.

The urine was normal except for a faint trace of albumin. A blood count showed 3,500,000 red cells, 75 per cent hemoglobin, 8,500 white cells, and a normal differential. The blood sugar was 92 mg. per hundred cubic centimeters. Two Wassermann tests of the blood were negative and the spinal fluid showed a negative Wassermann reaction in all dilutions and no increase in cells or globulin. A roentgen examination of the legs presented no evidence of any pathologic changes of the bone. Staphylococci were found in a culture of the secretions. The basal metabolism was minus 34. A biopsy was made shortly before her discharge from the hospital. A marked infiltration of mucin throughout the cutaneous network was seen. Marked vacuolization was present and the elastic and collagen fibers were separated and displaced. Large numbers of stellate cells were observed. The epidermis was essentially normal.

Course.—She was given 2 grains (0.13 Gm.) of thyroid extract three times daily, and wet dressings of 1:3,000 potassium permanganate were applied to the ulcerated areas. In five weeks these lesions, which had persisted unchanged for six years, had healed entirely. Her basal metabolic rate decreased to minus 8, and six weeks after her admission she was sent home. About one year after her discharge from the hospital she returned with similar ulcers on her left leg. The right leg remained completely healed. In a short while under the routine described the ulcers closed again, leaving only scars behind. In February, 1933, the ulcers occurred again in her right leg. Strangely enough, the basal metabolism then was plus 40. Rest in bed and small doses of iodine brought the metabolic rate down to plus 1 and again the ulcers closed. This change from hypothyroidism to hyperthyroidism seems to be characteristic of these leg lesions and was noted and commented on by O'Leary,[5] Pillsbury and Stokes,[6] and other observers.

Differential Diagnosis.—Eloesser [13] states that leg ulcers are usually of three types: arteriosclerotic, infectious, or due to varicose veins. These conditions can be quickly eliminated in this case. The patient showed no sclerosis in other parts of the body, and the blood pressure and kidneys were normal. No varicose veins were seen and she showed no obvious focus of infection. Local antisepsis and rest in bed were never of any avail until glandular therapy was instituted. Syphilis could be eliminated on account of the family history, the negative blood and the spinal Wassermann reactions, and by the gross and microscopic pathologic appearance. The ulcers of erythema induratum were considered, but the clinical picture was not that described by Bazin. The edges of the ulcers had not undermined and the coloration was not blue or bluish red. Nor was there any evidence of tuberculosis in other parts of the body. The blood count excluded from consideration the ulcers of sickle cell anemia or a severe secondary anemia. Rare conditions that cause ulcerations—fungi, drugs and the like—can all be conclusively eliminated.

Even though staphylococci were found in the secretions, the diagnosis of a pyodermic gangrenosa seems rather untenable. The disease is generally associated with anemia and colitis, neither of which conditions was present. The staphylococci were probably secondary invaders. The appearance of these ulcerations at the same time as the increase in size of the thyroid gland, the effective response to thyroid therapy, the changes in the basal metabolism corresponding to the clinical improvement of the legs leave no other diagnosis but that of ulceration of the lower extremities due to thyroid dysfunction.

COMMENT

This case arouses many interesting questions. In what way did the lack of the thyroid hormone aid in the production of the ulcers? Was this stage of deep ulceration an advanced stage from that of the so-called circumscribed myxedema described by the various authors already enumerated? Eppinger [14] advances the theory that there may be somewhere in the organism a

Fig. 2.—Left leg six weeks after admission to the hospital, showing complete healing of the ulcers. The open lesion above the healed areas is the site of the biopsy.

barrier that prevents the thyroid hormone, of which there is no lack, from reaching regions lying beyond it—a local myxedema as distinct from a general myxedema, which is caused by a general lack of hormone.

That thyroid hormone certainly plays a part in the healing of wounds is corroborated by the common

13. Eloesser, Leo: Leg Ulcer, S. Clin. North America **2**: 537-552 (April) 1922.

14. Eppinger, Hans: Torpid Cutaneous Ulcers as Symptoms of Local Myxedema, Klin. Wchnschr. **10**: 682 (April 11) 1931.

observation that wounds heal slowly in myxedematous patients. Accordingly, Eppinger [14] applied thyroid extract locally in torpid cutaneous ulcers and obtained very good results. The local application of hormone products to wounds and ulcers is nothing very new, for the French, particularly, have been applying insulin to facilitate healing ever since insulin was discovered. Pautrier, Schmid and Ullmo [15] report two cases of leg ulcers of long duration cured in two weeks by the application locally of insulin. However, other observers, prominently Nathan and Munk,[16] feel that the good effects are due to the acidity of the solution and not to the specific reaction of the hormone. Eppinger explained his good results by the assumption that in the biologic exchange of fluid the quality of the membrane plays an important rôle. The surroundings of the wounds or ulcers may have been so injured that it is impermeable to the thyroid hormone, which is such an important factor in the regeneration of cells.

Fig. 3.—Appearance of patient in February, 1933, showing the enlarged neck and the scars of the healed ulcers on her legs.

The presence of myxedematous symptoms in cases of hyperthyroidism seems rather anomalous. Most of the cases reported of circumscribed myxedema of the extremities occurred in exophthalmic goiter conditions following operation. In the case reported in this paper the patient noted the return of her ulcers when the basal metabolism was high as well as when it was low. The presence of hypothyroidism and hyperthyroidism in the same patient at the same time is rather confusing and difficult to explain. Richter [2] quotes Kocher as assuming that exophthalmic goiter has three stages: a primary stage marked by intense symptoms, a secondary stage marked by a relenting and changing of the symptoms in accordance with the intervention of endocrine correlations, and a third stage characterized by regressive changes. Since all the parts of the thyroid and the other endocrine glands are not equally affected, the clinical picture can vary enormously. Thus, for instance, part of the thyroid gland may return to a normal colloid condition, or the regressive changes may advance to such an extent that atrophy, which is ordinarily not a part of the histopathologic picture of exophthalmic goiter, comes to the fore and the hormone secretion reacts with hypothyrosis instead of with hyperthyrosis. Therefore, Richter believes that the paradoxical finding of myxedematous cutaneous symptoms in exophthalmic goiter has its explanation in a tertiary stage of exophthalmic goiter, which is hormonally associated with hypothyroidism.

It is nothing unusual to see patients going from physician to physician and from clinic to clinic complaining of severe ulcerations of the lower extremities which do not seem amenable to any treatment. A basal metabolism test might in some cases help to solve the problem and thyroid extract, used both internally and locally, might be very useful in healing some of these lesions. In every case of severe ulcerations of the lower extremities a careful physical examination and laboratory study should be made, for the majority of such disorders are due to systemic changes and not to local causes.

SUMMARY

1. This was a case of deep ulcerations of the lower extremities associated with myxedema.

2. The internal administration of thyroid extract quickly healed, in a few weeks, ulcers that had persisted unchanged for six years.

3. The cutaneous changes in diseases of the thyroid are not well understood or explained, and the relationship between circumscribed myxedema of the legs and leg ulcers of obscure etiology is suggested.

142 East Market Street.

15. Pautrier, Schmid and Ullmo: Leg Ulcers in Patients Without Hyperglycemia Cured by Insulin Used as a Local Application, Bull. Soc. franç. de dermat. et syph. **33**: 544, 1926.

16. Nathan, E., and Munk, A.: Local Insulin Treatment of Ulcers, Klin. Wchnschr. **6**: 1747 (Sept. 10) 1927.

Clinical Notes, Suggestions and New Instruments

AN UNUSUAL CASE OF CARDIOSPASM

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This case is reported principally because the esophagus was so dilated that it led to a clinical and roentgen diagnosis of fluid in the pleural cavity, and an aspiration of the esophageal fluid was made through the chest wall. This interesting clinical mistake has not heretofore been reported, as far as I have been able to determine from the literature. The case is interesting also because of the slight degree of dysphagia. This, of course, was a factor in forming the error in diagnosis.

L. W., a Negro, aged 35, admitted to Baylor Hospital outpatient department, April 19, 1932, stated that he had been working as a chauffeur and had been in fair health until February 26. On that day, as he was riding on a street car, he felt a sudden pain in the pit of his stomach and he "broke out in a cold sweat." He got off and, after walking two blocks, he vomited about a pint of dark red—to black—fluid, which he thought was blood. Since that time, he said, he had taken only liquids and a soft diet, but within a half to one hour after almost every meal he had vomited a large amount of fluid. This had been present up until the time of admission. He said that he thought he had a little fever but no chills. He gradually grew weaker and, during the two weeks prior to admission, was confined to bed. He lost during that time about 40 pounds (18 Kg.). He said nothing about having any dysphagia when questioned at first, but later on leading questions led to the admission of some trouble in swallowing. He said that he had had some burning in his hands and feet during the last few weeks. The family history and past medical history were negative.

The patient was small and emaciated. He was apparently comfortable. The blood pressure was 102 systolic, 68 diastolic. The pulse was 88; the temperature, 99 F. Examination revealed no changes except those found in the chest. There were flatness and diminished breath sounds at the right base up to the

level of the sixth dorsal vertebra. Tactile fremitus and voice sounds were also diminished. The heart was not enlarged, and the sounds were entirely normal. There were no râles at the apexes of the lungs. There was slight pitting edema of the feet. The reflexes were normal.

Tentative diagnosis was made of miliary tuberculosis with pleural effusion, or carcinoma of the stomach, with pulmonary metastases. An immediate diagnostic aspiration in the midscapular line was made in the clinic. The fluid contained yeast cells and a few blood cells. An x-ray film of the chest revealed "a large encapsulation of fluid in the right mediastinum and the right chest." A lateral view was made later and a report was made of "encapsulated mediastinal pleurisy." A second tap was made and a large amount of fluid was recovered, which had an odor of decomposed gastric juice. The patient was given barium by mouth, which revealed that the so-called encapsulated fluid was really a hugely dilated esophagus (fig. 1). An esophagoscopic examination was made, the fluid removed, and a diagnosis of cardiospasm established.

There were no ill effects following the aspiration, probably because the dilated esophagus was approximated so closely to the chest wall that no leakage occurred. The patient was treated by hydrostatic dilatation and he immediately began to gain weight. Later on it was found necessary to do a gastrostomy.

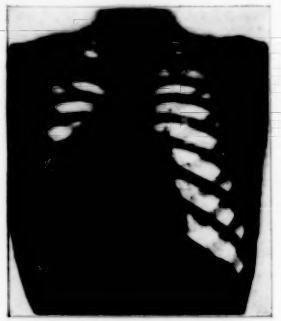

Fig. 1.—Anteroposterior view of chest showing enormously dilated esophagus full of fluid. It was into this sac that the puncture was made.

Fig. 2.—The same after ingestion of barium.

Fig. 3.—The same after a large amount of fluid had been aspirated from the esophagus.

Since that time, he had gradually increased his weight up to his usual normal. A prognosis for complete restoration of the esophageal function is not good, for he is having considerable difficulty at the present time in swallowing his food and it is still necessary to feed him through the gastric stoma.

Medical Arts Building.

BILATERAL NECROSIS OF THE CORNEA FOLLOWING THE USE OF HAIR DYE ON THE EYEBROWS AND LASHES

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There have recently been a number of case reports demonstrating the harmful results following the use of hair dye on the eyebrows and lashes. I am presenting this case not to advocate any type of treatment but merely to add one more case to the already fast growing list and to impress the importance of determining whether or not a person is sensitive to a particular dye before using this harmful procedure.

This case report concerns a woman, aged 66, who has had her eyebrows and lashes dyed many times. On April 15, 1933, she used a new preparation known as the Godefroy French Hair Coloring (Larieuse), which contains paraphenylenediamine. Immediately afterward her eyes began to itch. She consulted me three days later, at which time she had a conjunctivitis. I prescribed for her and did not see her again for two days. During this time the itching became more intense, both eyes became swollen shut, and her face became red and edematous from the hair line down to the chin. At first glance it looked similar to a facial erysipelas. It was very difficult to see the corneas, owing to the large amount of palpebral and bulbar chemosis and photophobia, but they apparently were clear.

A dermatologist was called in consultation and he prescribed for the skin condition. A dermal test with the dye resulted in a four plus reaction. The swelling continued, and one week later a small corneal ulcer appeared at the limbus of the right eye at 6 on the clock dial. The pupils were dilated with difficulty, by means of homatropine and then 1 per cent atropine. The ulcer was first cauterized with phenol and alcohol and it did not improve. Two days later a hypopyon appeared. The patient was then hospitalized and the ulcer cauterized with the actual cautery. In spite of all types of treatment, including foreign protein therapy and typhoid vaccine intravenously, the ulcer progressed and perforated.

All this time a careful watch was kept on the left eye. The following day, after the perforation of the right cornea, during the afternoon while the special nurse was away, an intense itching of the left eye suddenly occurred and the patient rubbed her eyes severely. Her forehead and lids at this time were somewhat improved, which I believe was due to shaving the brows and clipping the lashes. That evening an ulcer developed on the left eye and the whole corneal epithelium was denuded by the next morning. The margins were cauterized with the actual cautery and a Kuntz conjunctival flap was pulled over the cornea. Typhoid vaccine was again administered.

The progress was slow; the flap came off in four or five days and the ulcer was beginning to heal from the periphery. The margins were cauterized a number of times. In two or three weeks the ulcer was very small. July 4, after two weeks at home, the patient went about feeling better. Atropine had been discontinued for some time, because of atropine poisoning. Intense pain suddenly developed in the left eye. The tension was increased to digital palpation (I was unable to use a tenonometer because of the corneal ulcer) and could not be reduced with physostigmine, so an iridectomy was done, which has controlled the tension to date.

I last saw the patient November 1. She could see fairly well and could walk about the room. Her vision had improved rapidly in the past month, it being 10/200. I feel that this will increase as time goes on. She is using ethylmorphine hydrochloride, 5 per cent, three times a day.

COMMENT

1. The patient was particularly sensitive to paraphenylenediamine, as a scratch test was done on the arm, which produced a large erythematous area.

2. The ulcer on the right eye was very malignant and resisted all types of treatment.

3. I believe that the removal of the lashes and brows did more to alleviate the dermatitis than any other type of therapy.

4. The application of the conjunctival flap was a great factor in saving the left eye.

5. If the patient had been tested before the application of the dye, this pathetic condition could have been avoided.

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Special Article

CLINICAL CONTROL OF CHRONIC HEMORRHAGIC STATES IN CHILDHOOD

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(Concluded from page 210)

VASCULAR HEMORRHAGIC DISEASES

Hemorrhagic symptoms abound in disturbances of the vascular channels. Their integrity may be altered structurally or functionally with consequent escape of normal blood. Vascular structure may be affected externally by trauma and internally by increased pressure, by lack of nutritional elements, by bacterial invasion, by chemical injury and by lymphatic infiltration. Occasionally an infant is born with defective vascular structure in one part of the body or another. Again, vascular function may be influenced by internal secretions, by allergic substances and by infectious agents. Although structural changes necessarily disturb vascular function, the one group of hemorrhagic disturbances may be differentiated from the blood etiologically on the basis of extravasation of blood on

Fig. 8.—Proliferation of intima, and separation of elastica interna in scurvy.

the one hand and blood combined with exudate inflammatory changes on the other. Such clinical differentiation offers direct therapy on the basis of the etiologic factor interfering with vascular integrity.

The methods of studying the status of the child's vascular endothelium are as yet very crude but clinically accurate. Diminished capillary resistance may be determined by the tourniquet test yielding petechiae or hemorrhages, or it may be gleaned from the diminished urinary output in the erect posture in the presence of pathologic changes of the capillary system. It may be observed microscopically from capillary nail beds revealing structural changes. My determination of the presence of vascular pathologic changes, however, is made indirectly when blood studies show normal content of clotting constituents. Thus are the vascular problems, strictly speaking, nonhemorrhagic diseases.

1. *Hemorrhagic Avitaminosis.*—R. N., an infant girl, aged 4 months, was admitted for treatment of nutritional atrophy. Born at full term of an emaciated mother, the baby was maintained on very dilute boiled milk mixtures at irregular intervals with indiscriminate care. After gradual adjustment of concentrated feedings, the baby nevertheless failed to thrive. There were no evidences of enteral or parenteral infection. The blood Wassermann reaction and roentgenograms of the long bones were negative. Petechiae, first observed in the mucous membranes, spread until purpuric spots covered the body. The blood picture before transfusion showed hemoglobin, 70 per cent; red blood cells, 3,800,000; white blood cells, 14,000; lymphocytes, 55 per cent; platelets, 180,000; tourniquet test, positive; clotting index, 0.45. The purpura was unaffected by transfusion but cleared gradually with vitamins A, B, C and D reinforcing the feeding regimen. Vitamin deficiency produces capillary degeneration. In this case nutritional deficiency preceded birth and was particularly striking in the paucity of these vitamin factors in both the mother's and the baby's food. The blood showed no evidence of hemorrhagic disease but the purpura was a result of vascular injury resulting from vitamin deficiency.

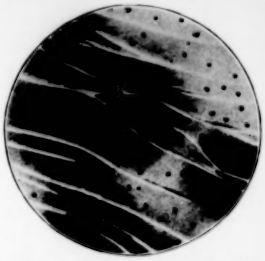

Fig. 9.—Microscopic section of a capillary bed in allergic purpura.

Scurvy is a classic example of the specific relation of vitamin C to hemorrhage. The primary disturbance is a separation of the cement substances binding the vascular endothelium cells. It is only in severe cases that bone marrow atrophy is produced with subsequent diminution in platelet formation. In children, the external vascular phenomena bespeak the typical clinical picture. And their manifestations are latent and elusive early in the deprivation of vitamin C in the dietary. So much emphasis has been placed on the rôle of vitamin C in the vascular hemorrhage that others have been neglected. Fanconi demonstrated that hemorrhagic symptoms in children with Herter's infantilism are a consequence of vitamin deprivation. Others have observed similar phenomena in the course of marasmus. Apparently, the nutrition of the vascular endothelium depends largely on the vitamin adequacy of the dietary.

2. *Allergic Purpura.*—A. L. a boy, aged 5 years, had recurrent attacks of colic since infancy. They usually occurred during the spring with pain in the abdomen and musculature followed by tarry stools with mucus. All treatment was refractory, each episode being self limited. At the fourth year the attack was so severe that the appendix was removed. When he came under my observation during an attack, the boy showed infected tonsils, carious teeth and intense dermatographia. The blood picture showed a hemoglobin of 80 per cent; red blood cells, 3,800,000; white blood cells, 17,000; platelets, 270,000; clotting time, five minutes; bleeding time, four minutes; tourniquet test, positive; polymorphonuclears, 74 per cent; eosinophils, 5 per cent. The urine showed albumin, casts and red blood cells. The parents were both allergic. The removal of carious teeth, tonsillectomy and gradual desensitization with a nonhemolytic streptococcus obtained from a culture of the tonsils prevented these attacks thus far for two years.

Systemic hemorrhagic attacks recurring in allergic children are well defined syndromes. The tissues affected by hemorrhage have previously been differentiated as separate syndromes, gastro-intestinal hemorrhages as Henoch's purpura, joint involvement as Schoenlein's purpura, and cutaneous eruptions as erythema multiforme; but the advent of the allergic mechanism has unified these syndromes into a single group of allergic purpura. They are usually the result of bacterial, food or drug allergy in children of allergic

Fig. 10.—Section showing destructive inflammatory lesion in a vein in syphilis: elastica destroyed, lumen of vessel occupied by new-formed vessels, giant cells, endothelioid cells and plasma cells.

constitution and parentage. The purpuric eruptions usually follow generalized symptoms which together constitute the recurring pattern for the particular child. The blood-clotting function is normal, but the capillary resistance is varied in the same patient. Once the diagnosis is determined, recovery is spontaneous and prognosis is always favorable.

Prevention of recurrent allergic purpura requires the discovery of the specific allergic offense. In the case of Henoch's purpura cited, the elimination of the oral foci of infection cleared the condition. In another case, that of a girl, aged 5 years, purpuric spots appeared over the legs with each attack of tonsillitis. Tonsillectomy was performed on the basis of a supposedly rheumatic fever and postoperatively petechiae and joint pains recurred. When the child was first presented a diagnosis of Schoenlein's purpura was made. The persistence of a hemolytic streptococcus in the sinuses was the focus responsible for the exacerbations. Desensitization with a specific vaccine eliminated the allergic purpura. Another girl, aged 8 years, showed for two years recurrent attacks of abdominal cramps, joint pains and purpuric spots over the legs. Since there were no foci of infection, skin tests were made. On that basis wheat, egg yolk and pork were eliminated, with complete disappearance of symptoms except for the purpuric eruptions. The accidental inclusion of an egg-containing food precipitated allergic symptoms. Clinical variations of allergic purpura are innumerable. Patients with recurrent attacks are treated for indigestion, rheumatic fever, purpura and sepsis and are operated on for appendicitis, intussusception or gastric ulcer before the actual diagnosis is established. But the attacks continue until the allergic offense is eliminated.

3. *Hemorrhagic Infections.*—H. R., a boy, aged 4 years, was admitted to the hospital with a history of convulsions associated with a severe infection of the upper respiratory tract. Hemorrhage appeared in the orbit and marked purpuric extravasations over the trunk and upper extremities. Facial weakness and complete right hemiplegia followed. Examination of the blood showed: clotting and bleeding time, normal; tourniquet test, positive; platelets, 310,000; platelet lysis, 35 per cent, and blood clotting function, normal. An encephalitic infection was the cause of the purpura.

Hemorrhagic symptoms predominate in infectious invasion. Vascular injury usually exceeds the disturbances in myeloid function, but the relative changes in each depend on the severity of the infection. I have observed as confirmation of the vascular injury petechiae containing the organisms of meningococcemia, embolic abscesses with visceral hemorrhages in pneumococcemia, nosebleeds and even hemorrhagic sputum in epidemic influenza, thrombotic petechiae consisting of tuberculids, punctate hemorrhages in scarlet fever, bleeding of the mucous membranes in diphtheria, hemorrhages from the mucous membranes in congenital syphilis, and purpura associated with the presence of endothelial cells in the circulating blood of subacute bacterial endocarditis.

Capillary hemorrhages are not infrequent as consequences of vascular congestion in the course of chronic infections. Rheumatic heart disease induces epistaxis or congestion hemorrhages in the edematous lower extremities. Pertussis precipitates hemorrhages into the conjunctivae and eyelids as well as from the nose and bronchi. Uremia occasionally reveals terminal cerebral, retinal and intestinal hemorrhages rather than petechiae. The hemorrhagic symptoms in uremia parallel the severity of capillary damage from infection and not the degree of nitrogenous retention. Increased venous pressure in normal circulatory systems is not a determining factor in these bleeding manifestations.

Arrest of bleeding in the course of infectious invasion may be brought about by therapeutic measures for decreasing capillary permeability. Elimination of infec-

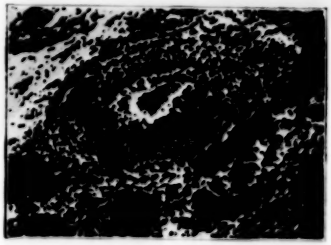

Fig. 11.—Proliferative phlebitis of a large vein in peritonsillar tissues in scarlet fever.

tion is, of course, the primary concern, but the self limited nature of infectious disease necessarily requires vascular medicaments. Clinically, calcium salts have been used in most hemorrhagic diseases for centuries, with favorable effects but based on erroneous interpretations. The calcium required in the clotting mechanism is rarely found wanting in amounts necessary for this process. Even the striking clinical entities involving hypocalcemia never show bleeding symptoms.

Calcium therapy is indicated in abnormal bleeding resulting from vascular dysfunction. Its effect is spe-

cific in decreasing capillary permeability. The calcium salts administered have no bearing whatever on elevating the well buffered calcium content of the blood. Calcium therapy is best administered intravenously in a 10 per cent solution of calcium gluconate or calcium chloride, from 10 to 25 cc. injected very slowly. Oral administration is, of course, slower in its effect but may well be supplemented in from 5 to 10 grain (0.33 to 0.65 Gm.) doses offered between feedings to prevent its precipitation into the intestinal tract and subsequent loss in the stools.

The administration of gelatin arrests bleeding by condensing platelets on the vascular bed. From 20 to 40 cc. may be injected intravenously in 10 per cent solution, or it may be fed in 10 per cent solution, either directly, sweetened and flavored with vanilla and mixed with milk, or as a jelly, which may be kept on ice for two days.

Solution of pituitary is an effective vasoconstrictor in arresting bleeding. This mechanism is operative in vascular beds other than those of the female genital organs. The injection of 0.5 cc. of solution of pituitary frequently suffices to arrest capillary oozing when due to vascular injury. The action is more prolonged than that of epinephrine hydrochloride. It is the vasopressor fraction of the posterior lobe that affects the vascular endothelium in the direction of increased blood coagulation.

HEREDITARY HEMORRHAGIC DISEASES

Hemorrhagic tendencies may be truly inborn. They are the consequence of hereditary defectiveness rather than symptoms of disease. In no other ailment is the medical history of previous generations as significant as in the transmission of hemorrhagic defectiveness. And its manifestations are so dramatic as never to be forgotten by any family. Teleologically there exist genotypes with transmitted defects in the formation of each of the clotting factors, sex-linked defectiveness in platelets in hemophilia, familial abnormalities in platelets in thrombasthenia, congenital derangement in fibrogen formation in fibropenia, familial defectiveness in vascular channels in telangiectasis. Thus may each of the factors involved in the clotting mechanism be formed defectively throughout life as a family failing. But these constitutional familial hereditary diseases are not always clear cut, for nature's defects are never selective. Obviously, combinations of hemorrhagic defectiveness exist as phenotypes of the well defined hereditary diseases. Clinically, even hereditary diseases are the result of disturbances existing simultaneously in the bone marrow, spleen, liver and capillaries. Therefore all the more caution is necessary in the diagnostic finality of hereditary hemorrhagic tendencies.

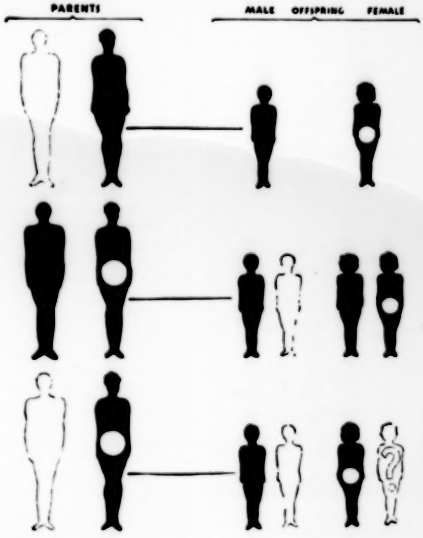

Fig. 12.—Transmission of hemophilia.

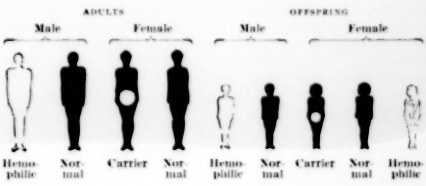

TABLE 4.—*Hereditary Hemorrhagic Diseases*

	Hereditary Transmission Through	Sex	Site of Bleeding	Blood Picture	Clinical Control
Hereditary hemophilia	Mother	Male	Mucous membranes, skin, joints	Platelets stable; clotting time prolonged	Locally: Raw meat, fresh blood Intradermally: Goat serum Intramuscularly: Ovarian extract, anterior pituitary Intravenously: Transfusion
Familial thrombocytopenic purpura	Parents	Male, female	Mucous membranes, skin	Platelets diminished; bleeding time prolonged; clotting retraction delayed; tourniquet test positive	Orally: Clotting diet, calcium salts Locally: Fresh blood Bodily: Ultraviolet irradiation Intram: Blood, calcium gluconate Intravenously: Transfusion Surgically: Splenectomy
Hereditary thrombasthenic purpura	Mother	Male, female	Mucous membranes	Platelets stable; bleeding time prolonged; clotting retraction, delayed; tourniquet test positive	Locally: Fresh blood Intravenously: 10% calcium salts, 10% gelatin, transfusion Intramuscularly: Ovarian extract
Hereditary hemorrhagic telangiectasis	Parents	Male, female	Mucous membranes defective; nasal, buccal, gastric, uterine, rectal	Normal	Local: Cauterization defective vessel Intravenously: Transfusion

1. *Hereditary Hemophilia.*—A. H., a boy, aged 8 years, bled from infancy with every disturbance. The mother's oldest brother was a bleeder. Continuous bruising followed slight trauma since walking. A large hematoma of the leg followed

an insect bite. An abrasion of the lip oozed for ten days. A slight laceration of the hand from cut glass on falling bled for days in spite of the administration of tetanus antitoxin. But a transfusion from the mother promptly arrested the bleeding. Hemorrhagic effusions into the left knee joint recurred until whole blood was administered from the mother at her menstrual period. Bruises continued following trauma but bleeding ceased after fortnightly injections of ovarian extract intramuscularly and goat's serum intradermally.

Hemophilic bleeding can be controlled but not cured. Mild bleeding may be stopped locally by application of fresh raw meat, fresh blood or cephalin after the removal of useless clots; pressure alone is contraindicated. All other hemostatics locally applied are ineffective. Severe bleeding may be checked for four days by the transfusion of whole blood from a suitable donor. Even an ounce of injected blood arrests hemorrhage, but the degree of subsequent improvement depends on the amount of blood given. Stored serum is ineffective in inhibiting clotting, but an ounce of fresh serum arrests bleeding within a day.

Fig. 13.—Precipitation of lead on vessel wall in lead poisoning.

Hemophilia is as characteristic clinically as it is hematologically. It occurs in the male with a typical familial bleeding pattern. It is transmitted by the female, although the mother's blood shows a normal blood-clotting function. Bleeding is protracted, the clotting time prolonged and, paradoxicaliy, the bleeding time normal. Hemophilic blood shows the lowest index of blood-clotting function and a normal or increased number of platelets, physiologically defective because of their striking stability. Capillary resistance tests reveal no impaired function.

Bleeding from superficial injuries may be diminished by passive sensitization. The maintenance of an allergic state by repeated serum therapy increases the prothrombin sufficiently to be protected by capillary hemorrhage following trauma. In fact, the clotting time of capillary blood is diminished within two hours of the injection of serum. But the change produced in the blood is inadequate against injuries involving the larger vessels and joints. The child is sensitized preferably to goat's serum by the subcutaneous injection of 3 cc. At the end of a fortnight, the child is given from 2 to 3 minims (0.12 to 0.18 cc.) of the serum intradermally. The appearance of a wheal at the site of injection indicates passive sensitization. The intradermal injection of the same serum should be repeated every two weeks for the maintenance of the allergic state. Another procedure effective in arresting hemorrhage in emergency is a transfusion of blood from a donor sensitized to goat's serum. The intradermal injection is repeated every fourteen days to continue sensitivity in the hemophilia.

Bleeding into the joints may be controlled by ovarian hormone therapy. Most hemophilic patients bleed from the mucous membrane of the nose, mouth and gums and into the joints. Other sites of hemorrhage are relatively infrequent in comparison. And no form of therapy thus far advanced has been as effective as the injection of female sex hormone. Its absence in the blood of tissues of hemophilic boys is a hereditary sex-link deficiency factor. Its administration weekly produces no changes in the concentration of clotting substances, but rather decreases capillary permeability. Injection of active ovarian extract is indicated for interim treatment of the hemophilic state rather than for control of acute hemorrhages. Repeated intramuscular injections decrease the bleeding tendency without affecting the easy bruising. Acute joint lesions require splinting and even immobile plaster-of-paris bandages until pain disappears and the hemorrhage is absorbed. Aspirations are contraindicated. Chronic hemophilic arthritis requires correction of deformities. Traction or wedging plasters or mechanical appliances stretch the contracted tissue and strengthen the joint. Then the limb is kept in the corrected position by an elastic bandage.

TABLE 5.—*Therapeutic Measures for the Arrest of Bleeding*

Procedure	Platelet Deficiency	Fibrinogen-Prothrombin Diminution	Vascular Disturbance
Local	Extract of blood platelets, ultraviolet irradiation	Thromboplastin, meat juice	Shepherd's purse
Oral	Viosterol	Cephalin, fibrinogen	Calcium salts
Nutritional	Dietary fat (unsaturated lipids)	Dietary protein (gelatin, viscera)	Base-forming foods
Intramuscular	Foreign protein	Blood serum	Pituitary, parathyroid extract
Intravenous	Transfusion	Transfusion	10% calcium salts, 10% gelatin

The prevention of hemophilia is a problem for eugenics. The course of the disease can be altered. Nature spares hemophilic new-born infants from the effects of birth trauma by the transmission of an abundance of female sex hormone into the infant's circulation. Thus is it that the disease does not become manifest until late in infancy unless surgical intervention precipitates bleeding. The disease tends to ameliorate with growth, particularly after the endocrine adjustment of puberty. The avoidance of trauma by limitation of activity requires compensatory physical therapy to improve muscle tone. The maintenance of bodily warmth and vacations in warm climates appear, in addition, to alter favorably the course of the disease. The clotting dietary has produced no appreciable effect on the hemorrhagic status of hemophilic persons. Infection has been found to precipitate bleeding, particularly into the skin and joints. Operative emergencies are safely carried out after preliminary transfusion.

Fig. 14.—Vascular varicosities with hemorrhage in hereditary telangiectasis.

2. *Familial Thrombocytopenic Purpura.*—J. C., a boy, aged 14 years, had suffered severe nosebleeds since infancy. His mother's maternal uncle and grandfather and two sisters were similarly affected. No other form of bleeding occurred, but the epistaxis recurred regularly during the winter months. During the period of an infection of the upper respiratory tract, nosebleeds became more persistent, not infrequently being associated with petechiae in the conjunctiva and palate. There was no evidence of telangiectasis in the upper respiratory tract. The nail fold capillaries were tortuous. The spleen was never felt. The blood picture was normal, the platelets fluctuating around 110,000; bleeding time was twelve minutes and clotting time four minutes; clot retraction was delayed; the tourniquet test varied. The boy was maintained on a high fat and protein dietary with some benefit. Early treatment of infectious invasion minimized several attacks of epistaxis. Irradiation by ultraviolet light reinforced by 10 D cod liver oil and calcium salts during the winter months contributed toward the elimination of these attacks. A donor for intramuscular and intravenous therapy was available but not used.

Essential thrombocytopenic purpura may be a constitutional disturbance characterizing certain families. Cases have been reported in infants of both sexes born of mothers with this disease. In fact, some of the infants have shown multiple malformations in other tissues of the body and some have shown striking deficiencies in megakaryocyte formation. Intravenous transfusion is effective if repeated, but intramuscular blood is of little avail. Splenectomy is a surgical risk in new-born infants Of those that survive, recurrent bleeding persists more or less throughout life. There is always a hereditary history, its transmission being a dominant characteristic; and the pattern of bleeding simulates the affected members of the family. The basis of the bleeding is thrombocytopenic and, unless medical supervision minimizes bleeding, splenectomy is indicated.

3. *Hereditary Thrombasthenic Purpura.*—B. W., a girl, aged 10 years, had spontaneous hemorrhages since infancy. Her mother had had recurrent epistaxis and mild purpura throughout her life, but none of the older children were affected. The child would suddenly develop severe nosebleeds or ecchymosis over the head, neck and extremities without any apparent exciting cause. At 7 years, a loosened tooth followed bleeding of the gums for two weeks. At 8, a vaginal hemorrhage stimulated menstruation. She was variously treated for purpura and hemophilia. The hemoglobin was 55 per cent.; red blood cells, 3,100,000; white blood cells, 7,800; polymorphonuclears, 71 per cent; monocytes, 15 per cent; lymphocytes, 12 per cent; platelets, 395,000; clotting time, six minutes; clot retraction, delayed. Bleeding time from the right ear lobe was ten minutes; left ear lobe, thirty-two minutes; the tourniquet test was positive. Bleeding was arrested locally by means of tampons saturated with fresh blood obtained from the father. Only repeated intravenous transfusions were effective in aborting the duration of spontaneous hemorrhages.

Children may be born with hemorrhagic purpura without thrombocytopenia. It is transmitted by the mother to both sexes. Recurrent bleeding may be spontaneous or traumatic. The blood picture is normal, excepting for the changes incident to the simple loss of blood, but the platelets are always normal in quantity but defective in quality. They show abnormalities in size, shape and staining qualities with consequent failure of agglutination. Therefore the bleeding time is prolonged, clot retraction is retarded or absent and the tourniquet test is positive. Therapy is based on procedures for supplying normal platelets only possible by intravenous transfusions. All other platelet therapy is ineffective and splenectomy is useless. Recently I have found the administration of theelin particularly effective in accelerating platelet agglutination.

I have witnessed death following splenectomy in a 10 year old girl with this condition. Like her mother, she had had recurrent epistaxis and purpura since birth. Her blood picture was characteristic of thrombocytopenic purpura, but a neglected hemorrhage became uncontrollable when splenectomy was performed. I followed the course of this disease in two brothers whose mother experienced milder purpuric bleeding. One boy had hemorrhagic measles. Both boys responded well to protection from trauma, prevention from infectious foci, early arrest of purpuric symptoms and repeated transfusions before bleeding became uncontrollable.

4. *Hereditary Hemorrhagic Telangiectasis.*—J. G., a girl, aged 13 years, a twin, developed repeated nosebleeds. The other twin was normal, but the grandmother, paternal uncle and nephew had similar attacks. Examination of the blood showed hemoglobin, 60 per cent; red blood cells, 4,000,000; white blood cells, 8,500; polymorphonuclears, 65 per cent; platelets, 280,000; clotting time, three minutes; bleeding time, five minutes; clot retraction, three hours; tourniquet test, negative. Examination of the nasal and mucous membranes showed multiple angioma as the local cause for bleeding.

Puberty first precipitates bleeding varicosities which characterize this developmental effect. It is transmitted by both sexes and affects both. Inherited defects in the venous channels are usual in the nasal and buccal mucous membranes but hemoptysis, gastric hemorrhage, uterine bleeding, hematuria and even rectal bleeding may result from such telangiectases. The blood picture is normal and so there is no excessive bleeding or bruising from other sites of the body excepting from the dilated vessels. The treatment is local and as yet not specific.

5. *Transitional Hereditary Hemorrhagic Diseases.*—H. C., a boy, aged 14 years, gave an unusual hemorrhagic picture. The family was free from hemorrhagic heredity. Recurrent nosebleeds from infancy alternated with purpuric eruptions, joint lesions and hematuria. On examination, the boy showed petechiae of the mucous membranes, ecchymosis over the extremities and acute hemarthrosis. Examination of the blood showed: hemoglobin, 70 per cent; red blood cells, 4,000,000; white blood cells, 5,900; polymorphonuclears, 70 per cent; lymphocytes, 20 per cent; platelets, 450,000; clotting time, eighteen minutes; bleeding time, forty minutes; clotting retraction, positive; tourniquet test, positive.

Such is the blood picture of an atypical hemorrhagic problem. It conforms both to hemophilia and to thrombocytopenic purpura. It demonstrates the futility of following pattern pictures for diagnostic nomenclature. Hemorrhagic patients respond to proper measures corrective of their disturbance rather than to those traditional treatments accorded to the disease label. In no other disease mechanism is individualization of diagnosis and treatment essential. Among the chronic hemorrhagic disturbances exist entities intermediate between the so-called primary hemorrhagic diseases. Hemophilia is etiologically an endogenous disease of certain mesenchymal structures, as are the purpuras, thrombocytopenic and thrombasthenic. Hence, combinations of such defectiveness exist simultaneously in these tissues, giving rise to chronic transitional disturbances. Observation of such cases has contributed as much to a clinical conception of hereditary heterogeneity as to the creation of corrective measures in their behalf.

1060 Park Avenue.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

ANTIRABIC VACCINE (See New and Nonofficial Remedies, 1933, p. 371).

The National Drug Co., Philadelphia.

Rabies Vaccine-Human (Semple Method) (See New and Nonofficial Remedies, 1933, p. 373).—Also marketed in sets of two packages, the first containing four 2 cc. syringes and the second containing ten 2 cc. syringes.

DIPHTHERIA TOXOID (See New and Nonofficial Remedies, 1933, p. 384).

The National Drug Company, Philadelphia.

Diphtheria Toxoid (See New and Nonofficial Remedies, 1933, p. 385).—Also marketed in packages of ten immunization treatments, consisting of twenty 1 cc. vials, each containing one human dose.

ANTIMENINGOCOCCUS SERUM (See New and Nonofficial Remedies, 1933, p. 367).

The National Drug Company, Philadelphia.

Antimeningococcic Serum.—Marketed in packages of two 15 cc. double-end vials with apparatus for intraspinal injection; in packages of one 15 cc. cylinder with intra-spinal needle; and in packages of one 30 cc. double-end vial, with special intravenous and intraspinal needles and gravity outfit.

Committee on Foods

THE COMMITTEE HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. RAYMOND HERTWIG, Secretary.

NOT ACCEPTABLE

WELCH'S CERTIFIED-PURE PASTEURIZED GRAPE JUICE

The Welch Grape Juice Company of Westfield, N. Y., submitted to the Committee on Foods a bottled pasteurized grape juice, slightly sweetened with sucrose, called Welch's Certified-Pure Pasteurized Grape Juice.

Preparation.—The grapes are washed, crushed, stemmed, heated to 57 C. and pressed; the juice, slightly sweetened with added sucrose, is heated to 88 C. and filled into 5 gallon carboys, which are sealed and stored for three months, during which considerable cream of tartar settles out along with some organic matter. The supernatant juice is siphoned out, heated, filled into bottles and pasteurized.

Analysis (submitted by manufacturer).—

	per cent
Moisture	82.3
Total solids	17.7
Ash	0.3
Fat	0.0
Protein (N × 6.25)	0.3
Reducing sugars as invert sugar	15.1
Nonsugar solids	2.6
Total acids as tartaric	1.0
Tannin and coloring matter	0.3
Potassium bitartrate (cream of tartar)	0.4

Calories.—0.6 per gram; 17 per ounce.

Discussion of Advertising.—Recent advertising announced this grape juice as a discovery of modern science for weight reduction and the burning up of fat. The following examples illustrate the type of claims used:

"Modern science discovers Welch Grape Juice burns up fat. . . . Get thin the new way. . . . Drink Welch's and keep your girlish figure. . . . Welch's simple grape sugars are quickly absorbed and used and hence not stored as fat . . . its non-fattening grape sugar forces the body to burn up its fat. . . . Stay slender drinking Welch's. . . . Famous food authority says Welch's should be on every reducing diet to insure healthful reduction. . . . This new method takes advantage of the amazing health properties in Welch's Grape Juice. . . . For years the 'grape cure' has been prescribed by the most eminent European doctors as the ideal method of healthful weight reduction. . . . It has now been shown that Welch's Grape Juice contains all the elements of the grape useful for weight control. . . . In order for fat to burn, there must be available to the tissue . . . easily burnable predigested, non-fattening grape sugar in Welch's Grape Juice. . . . Taken . . . with proper diet, fat disappears. . . . You're going to take the Grape Cure . . . the accepted weight control formula. . . . Its natural potassium removes unnecessary water from the body's tissue. . . . Welch's contains more of the essentially energizing elements than any other popular fruit juice. . . ."

The claims would falsely lead the reader to believe that Welch Grape Juice has specific properties for reducing weight. This grape juice is no more effective for reducing weight than are many other common foods. It does not "burn up fat" and its sugar chemically plays the same part in fat metabolism as does any other available carbohydrate. The advertising naively makes it appear that it is the grape juice in reduction diets which brings about weight reduction and not the controlled diet as a whole. The sugars of grape juice may be "stored as fat" under proper conditions, as are any sugars or other carbohydrates. Its sugar in no sense "forces the body to burn up its fat." The much ado about the grape sugar being "predigested" has no significance.

Drinking Welch's Grape Juice does not assure slenderness, as stated or implied, but may increase weight. One glass furnishes 143 calories. No "famous food authority" can truthfully or authoritatively say that "Welch's should be on every reducing diet to insure healthful reduction." This grape juice will not "keep [one] healthy" nor will its "natural potassium" remove "unnecessary water from the body's tissue." Healthy tissues do not contain unnecessary water. The product has no "amazing health properties" or any specific "health properties" at all. Its nutritional values are limited. A reducing diet containing grape juice is no "grape cure." Welch's Grape Juice is not significantly different from any other good grape juice.

The advertising claimed that this grape juice has special blood building power. It appealed

"to mothers of anemic, run-down children [who are] thin as a rail . . . [who] suffer dreadfully from indigestion . . . [are] white as a sheet . . . [whose] teeth are soft." It stated that "Welch's worked wonders with Jane. . . . It contains more vitamin B than orange juice . . . is superior to it as a hemoglobin or red corpuscle restorative. . . . In countless homes, Welch's is helping anemic, run-down children build muscle and bone, make rosy cheeks, and buoyant energy . . . If your children just pick at their food, refuse to eat . . . don't wait, buy a bottle of Welch's. Start them with a glass for breakfast, then once or twice during the day and again before retiring. . . . In a very short time, you will see wonderful results. . . . Be sure to insist on Welch's. It is the Welch process that retains in the juice the healthful properties of ripe grapes so essential to the system. A noted food authority . . . has shown that Welch's compares favorably with mother's milk in protein content (body building material) and also iron, calcium, phosphates, and magnesium, so essential for growing children. Because of these "properties . . . physicians recommend Welch's Grape Juice as the key element in the build-up diet of the child. . . . [It] contains two elements which are essential to the health of your child . . . sugar . . . protein" and "calcium and phosphorus. . . . As a Regulator, Welch's Grape Juice contains minerals, water, and vitamins natural to the grape which facilitate the elimination of waste products from the intestinal tract . . . aiding digestion, absorption, elimination and also reducing food putrefaction . . . aids building them [foods] in solution in the blood . . . and carrying waste products from the tissues to be eliminated by the lungs, kidneys, skin and intestines. . . . Welch's . . . contains vitamin B necessary to normal appetite, to vigor. The absence of vitamin B from the diet is a cause of neuritis or nerve disintegration, dyspepsia, constipation and other intestinal troubles." The advertising questions "Is this not true of other grape juices also? To this question we must answer 'Perhaps.' But 'perhaps' has no place in the diet of children. . . . It entices [children] into taking sufficient water, seriously lacking in the diet of so many children and the unsuspected cause of countless disorders and deficiencies. It assists metabolism or assimilation of other foods. . . . Women at those periods when they are troubled with nausea . . . expectant and nursing mothers who need an additional mineral supply . . . find Welch's invaluable. . . . It contains no water and above all no tartaric acid. . . . For many years physicians have recognized the value of Welch's Grape Juice as an aid to quick recovery from wasting illness. . . . Hospitals and medical specialists have long valued Welch's in treating intestinal troubles. Especially is it valued in stomach and nervous disorders . . . whenever the digestive system cannot or will not handle other foods. . . . It is difficult to write of Welch's without dwelling long on its wonderful medicinal and dietetic values. . . ."

The claims are either flagrantly incorrect or misleading. Many commonplace foods of the table are of far greater importance for improving run-down children. Grape juice has no

value for building muscle or bone. Welch's will not revive lost appetites nor is it important for contributing vitamin B for normal appetite. Welch's has no value as implied for preventing the stated disastrous results of a vitamin B free diet, nor has it any wonderful medicinal and dietetic values. It is not different from any good grape juice. No rational "noted food authority" would in any manner compare Welch's with mother's milk for popular advertising purposes. These two foods are as utterly unlike in nutritional values as in appearance and flavor. Welch's is anything but the key element in the "build-up" diet of the child. It is essentially a pleasingly flavored sugar solution, ranking with *water* for "facilitating elimination of waste products, aiding digestion, absorption, and reducing food putrefaction." Children normally drink enough water to avoid safely unsuspected "countless disorders and deficiencies due to possible lack of water." Expectant and nursing mothers cannot derive their needed additional mineral supply from Welch's.

Many other types of crudely ludicrous and misleading claims of the advertising are not listed here because of space limitations.

This advertising is manifestly an artfully designed piece of deception to ennesh the credulous and those uninformed in nutrition and physiology. It is a hodgepodge of nutritional and physiologic chicanery, falsities, vagaries, juggled and distorted facts, misrepresentations, and claptrap claims. It is a revival of the blatant "patent medicine" and nostrum blurbs of the past. The advertising treats an ordinary food as a therapeutic and weight-reducing agent, which it is not.

Perversions of advertising of this character bring good advertising into disgrace and disrepute and unfortunately harm the majority of the food trade that conscientiously attempts to deal fairly.

The company, when informed of the Committee's opinion, has not expressed willingness to change the advertising. This brand of grape juice, therefore, cannot be listed among the Committee's accepted foods.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION. RAYMOND HERTWIG, Secretary.

BEECH-NUT BRAND STRAINED BABY SOUP
(Slightly seasoned with salt)

Manufacturer.—Beech-Nut Packing Company, Canajoharie, N. Y.

Description.—Strained vegetable soup prepared from tomatoes, carrots, celery, cabbage, barley, rice, salt and a small amount of onion, retaining in high degree the natural vitamin and mineral values.

Manufacture.—Carrots, celery, cabbage and onions are washed by hand and the carrots scraped; all are cut fine. Definite proportions of rice and barley are cooked for one-half hour. The vegetables, salt and a little water are added. The cooking is in a glass-lined kettle in an atmosphere of steam. The material is strained; canned sieved tomatoes are added and the composite is vacuumized and standardized for consistency. The subsequent treatment and processing are the same as for Beech-Nut Strained Carrots (THE JOURNAL, Nov. 11, 1933, p. 1562).

Analysis (submitted by manufacturer).—

	per cent
Moisture	88.9
Total solids	11.1
Ash	1.0
Sodium chloride	0.5
Fat (ether extract)	0.0
Protein (N × 6.25)	1.3
Crude fiber	0.8
Carbohydrates other than crude fiber (by difference)	8.0

Calories.—0.4 per gram; 11 per ounce.

Vitamins and Claims of Manufacturer.—See Beech-Nut Strained Carrots (THE JOURNAL, Nov. 11, 1933, p. 1562).

ROSE BRAND UNSWEETENED EVAPORATED MILK

Manufacturer.—The Borden Sales Company, Inc., New York.

Description.—Canned, unsweetened sterilized evaporated milk, the same as the accepted Borden's Unsweetened Evaporated Milk (THE JOURNAL, Feb. 15, 1930, p. 485).

HUBINGER CRYSTAL WHITE SYRUP
(CORN SYRUP AND GRANULATED SUGAR SYRUP)

Manufacturer.—The Hubinger Company, Keokuk, Iowa.

Description.—Table syrup; corn syrup flavored with sucrose syrup and vanilla extract.

Manufacture.—Corn syrup, prepared by the usual method of acid hydrolysis of corn starch (see Penick Golden Syrup, THE JOURNAL, April 2, 1932, p. 1159), is blended with sucrose syrup and flavored with vanilla extract. The mixture is heated to 77 C. and automatically packed in cans at 74 C.

Analysis (submitted by manufacturer).—

	per cent
Moisture	24.9
Ash	0.2
Fat (ether extract)	0.0
Protein (N × 6.25)	0.0
Reducing sugars as dextrose	30.9
Sucrose (copper reduction method)	8.7
Dextrins (by difference)	35.3

No methods are available for accurately determining the composition of syrups of this nature; therefore the foregoing analysis is roughly approximate.

Calories.—3.0 per gram; 85 per ounce.

Claims of Manufacturer.—For cooking, baking and table use or as a carbohydrate supplement for milk modification for infant feeding.

McCAHAN'S SUNNY CANE SUGAR
GOLDEN YELLOW
OLD TIME BROWN

Manufacturer.—The W. J. McCahan Sugar Refining and Molasses Co., Philadelphia.

Description.—Respectively, light yellow and brown grades of refined cane sugar.

Manufacture.—Syrup obtained from washing imported unrefined cane sugar crystals in the centrifugal machines (See McCahan's Sunny Cane Sugar—Extra Fine Granulated, THE JOURNAL, Jan. 20, 1934, p. 212) is filtered through bone black and concentrated in "vacuum" until the magma formed has the desired "grain"; the crystals are centrifugated to remove excess syrup. The moist soft sugar containing varying amounts of the original syrup is cooled and graded according to the degree of color of the finished product. Darker syrups contain less sucrose and correspondingly greater amounts of invert sugar and mineral salts. Dark syrup is used to produce the "Old Time Brown" sugar and light syrup for "Golden Yellow" sugar.

Analysis (submitted by manufacturer).—

	(light) per cent	(dark) per cent
Moisture	4.3	4.7
Ash	0.5	1.5
Fat	Absent	Trace
Protein (N × 6.25)	0.1	0.4
Reducing sugars as invert	2.5	8.2
Sucrose (polarimetric method)	92.1	84.9

Calories.—From 3.8 to 3.7 per gram; from 108 to 105 per ounce.

Claims of Manufacturer.—These refined sugars possess a molasses-like flavor and a yellowish or brownish color, contain slight amounts of fructose (fruit sugar), dextrose (corn sugar) and mineral salts naturally found in the original cane juices.

FORESCO BRAND STERILIZED UNSWEETENED EVAPORATED MILK

Distributor.—Forest City Wholesale Grocery Co., Inc., Rockford, Ill.

Packer.—Dean Milk Company, Chicago.

Description.—Canned, unsweetened sterilized evaporated milk, the same as Dean's Quality Evaporated Milk (THE JOURNAL, Aug. 6, 1932, p. 477).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 27, 1934

FAT AND THE DIABETIC PATIENT

Conventionally, diabetes is considered a disease involving, primarily, carbohydrate metabolism. The striking effect of insulin on the concentration of blood sugar has served to confirm the association. Nevertheless, the disturbance of fat metabolism plays no small part in the pathogenesis of this disease. In a recent review, Joslin [1] has summarized various aspects of the significance of fat to the diabetic patient. He repeatedly points out the great change brought about in the outlook for the diabetic child by the introduction of insulin. Among the results of the prolongation of life of this younger group of patients is the realization not only that heredity plays an important part in the predisposition to the disease but also that obesity alone is probably a less significant factor than was formerly believed; it merits special attention when there is a hereditary tendency. Although the obese person may show a decreased pancreatic efficiency, the presence of excess body fat is really a sign of overeating in general with concomitant taxing of the insular function. The rapid deposition of fat is likely to burden the pancreas to a greater extent than is a more gradual accumulation. Exercise is therefore of particular importance as a prophylactic against diabetes. On the basis of statistics as to causes of death among physicians since 1902, Joslin points out that "the doctors have profited no more from their knowlege of obesity as a cause of diabetes than the laity."

A study of the cholesterol of the blood of groups of patients with diabetes has shown a tendency to decrease in concentration during recent years from an average of 424 mg. per hundred cubic centimeters of blood in 1916 to 212 mg. in 1932. Similarly in the same interval there was a definite decrease in the number of clinically "severe" cases. These changes are correlated with changes in treatment which, in turn, permitted a change in the proportion of carbohydrate to fat in the diet, thus decreasing the total blood fat. Accompanying the lowered fat in the blood is a smaller incidence of coma, one of the principal complications of diabetes. It is stated that, in general, a high blood cholesterol is reliable evidence that the diabetes is not under control; values greater than 230 mg. per hundred cubic centimeters of blood should be looked on with suspicion.

With the advent of insulin, removal of all restriction on the diet has at times been urged. Joslin reviews the experience with the high fat diets during the first decade of this century, then the period when total energy intake was severely restricted but with the relative proportion of fat calories still high, and finally the modern era, when the criteria for proper treatment are "health, happiness and chemical assurance in blood and urine that the disease is controlled." He prefers moderate restriction of carbohydrate with fats providing somewhat more of the total calories than usual among normal individuals but suggests that every advantage be taken of a proved increase in tolerance for carbohydrates. The current tenets of this careful student of diabetes can well be summarized by his own phrase: "diet, exercise and insulin."

1. Joslin, E. P.: New England J. Med. **209:** 519 (Sept. 14) 1933.

THE BUREAU OF MEDICAL ECONOMICS

Since the establishment of the Bureau of Medical Economics of the American Medical Association, a vast amount of data in the field of medical economics has been collected and made available to the medical profession in various forms. In fact, it is safe to say that the publications issued by this bureau, largely as a result of its own researches, are unique. The work duplicates that done elsewhere only when the bureau has repeated investigations by other agencies in order to check and confirm them.

Many of the reports have been published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION and have thus been made available to physicians generally. Others, however, have been of such scope and detail that it has been found necessary to print them as separate pamphlets.[1] This has been particularly required because physicians frequently seem to overlook some of this technical material in the vast amount of scientific, editorial and journalistic material published in THE JOURNAL. In view of the importance of the Bureau of Medical Economics, it has even been suggested that these articles be printed on paper of a different color or that the items be inserted in some special part of THE JOURNAL. One physician facetiously suggested that this be among the obituary notices or the Tonics and Sedatives in order that they may be read by every physician. It is apparent that practically every doctor reads these two sections every week.

1. The bulletins here referred to are available through the American Medical Association at the prices indicated: An Introduction to Medical Economics, 15 cents; Contract Practice, 10 cents; Income from Medical Practice, 15 cents; Group Practice, 15 cents; The Costs of Medical Education, 10 cents; Collecting Medical Fees, 10 cents; Medical Relationships Under Workmen's Compensation, 75 cents.

The staff of the Bureau of Medical Economics has not depended for its information on data available in medical periodicals or bulletins issued by various agencies. It has not even depended largely on the questionnaire method—a method, by the way, largely followed by other research organizations and one susceptible of considerable doubt because of the psychologic factors naturally involved. During the few years since its establishment, representatives of the bureau have been in practically every state of the Union. They have studied conditions in Cuba at first hand, and they are aware through direct contacts of the sociomedical situations in most foreign countries.

How many physicians realize that this bureau has now made available an "Introduction to Medical Economics," which traces the position of medical economics in relationship to economics generally, which analyzes the question of payment for medical service and the field available for the sale of such service, which considers medical care and the distribution of wealth, and which traces some of the changes in medical institutions that have occurred in recent years? The bulletins on contract practice, on the income from medical practice, on group practice and on the costs of medical education, as well as the pamphlets on prepayment plans for hospital care and on the collection of medical fees, represent studies directly related to difficult situations in the medical profession today. All sorts of hospital insurance schemes, corporation practices and similar mechanizations of medical practice have been studied in different parts of the country. The book entitled Medical Relations Under Workmen's Compensation is one of the most comprehensive and authoritative studies available in this field. It is more than 150 pages in scope, well organized and adequately indexed. A book on medical organization for practice in Cuba and one on compulsory health insurance schemes abroad are in process of publication.

In view of the nature and the amount of the material thus developed and made available, it is unfortunate that the vast majority of the medical profession does not take a greater interest in following the trends of medical practice. Occasionally meetings devoted to medical economics in large medical centers are largely attended, but only a few men concern themselves with committee meetings and with the details of local problems in such places. THE JOURNAL, as a medium devoted largely to the interests of general practitioners, recognizes that many members of the medical profession may not be interested in the details of bronchoscopy, brain surgery or even the specificity of nonspecific proteins. Medical economics, however, should be the interest of every physician, particularly in these times of changing points of view and opinions swayed by propaganda. A man well informed is doubly armed against the nonmedical exploiter of medical practice and the fanatic exponents of half-baked schemes for social change.

THE HUMAN CAPILLARIES

The physician of today has become accustomed to specialization of the most specific types. Each year more specialized novelties enter the practice of medicine. Presently they become established parts of diagnostic or therapeutic routine. The x-ray laboratory and the allergy clinic represent pertinent illustrations. Among innovations in this respect is the capillary laboratory. Until lately the descriptions of the capillaries and their functions could be expressed in a few words. It sufficed to refer to them as a network of minute tubules connecting the terminations of the smallest arteries to the commencement of the smallest veins. In structure they were thought of as a single layer of elongated flattened and nucleated epithelium cells. The latter were much more difficult to observe in life than the blood cells traversing the capillaries, often in single file. The normal thickness of the walls of these vessels appears to be somewhat less than 1 micron. Little wonder that they have been described as a most essential unit of the circulatory system, the part about which least is known.

As has happened so often in other fields of study, progress in the understanding of the capillaries has been greatly promoted by the development of new methods of observation. Direct inspection as well as photography is being applied for this purpose in man as well as in experimental animals.[1] One consequence is the conclusion that somehow the capillaries are subject to changes in caliber. This has helped greatly to explain the great variations in the blood supply and consequent exchange of components between the circulating blood and its immediate environment. Hence more than a decade ago the conclusion seemed warranted that the capillary bed had the ability to respond to the local needs of the tissue by dilatation when the conditions of the tissue tend toward asphyxiation and by constriction when the local needs have been satisfied.[2]

How are such changes in caliber brought about? It has long been debated whether the capillaries really have the ability to contract independently or to produce peristaltic movements.[3] The work of Sir Thomas Lewis and his co-workers at University College in London indicates that the capillaries and the venules are capable of active contraction. These vessels can exert a force when fully contracted which resists the full entry of blood into them up to a pressure of from 90 to 100 mm. of mercury. When dilated they are able, by contracting, to expel their contents against internal pressures of at least 50 or 60 mm. of mercury. This means that these vessels must be of almost as great import as the arterioles in influencing circulatory events. Wright

1. Duryee, A. W., and Wright, I. S.: Modern Methods for the Study of Human Capillaries, Am. J. M. Sc. **5**: 664 (May) 1933.
2. Hooker, D. R.: Evidence of Functional Activity on the Part of the Capillaries and Venules, Physiol. Rev. **1**: 112 (Jan.) 1921.
3. A discussion of this and related subjects is presented in detail by Wright, I. S., and Duryee, A. W.: Human Capillaries in Health and in Disease, Arch. Int. Med. **52**: 545 (Oct.) 1933, from which many of the statements made above have been taken.

and Duryee believe that the capillary bed is responsive to chemical influences by local reactions, usually by dilatation (only in special or pathologic cases by general reactions), and to nervous stimulation usually by constriction, over the body as a whole. It is therefore likely that beyond the arterioles the capillaries and venules function actively, thereby participating directly in vascular reactions. These, however, are views that need to be more firmly established before they can finally be classed as scientific facts.

These studies have served also to give a better understanding of capillary pressure. Although the estimation of this factor has long been the subject of experimental investigation, opinions as to the values derived have varied greatly. Out of the welter of conjectures it may be tentatively concluded that the average figures for capillary pressure in man may be placed between 19 and 26 mm. of mercury. It seems possible now to allege with some conviction that the permeability of the capillary walls is subject to the laws of filtration, diffusion and osmosis and is also affected by the ionic concentration at the cell membranes in the blood, the state of the endocrine system, and especially the state of the visceral nervous system. In any event the time has apparently arrived for the detailed investigation of the capillaries in disease, with the expectation that the outcome will provide useful information.

CHANGES IN STATE MEDICAL PERIODICALS

The *Wisconsin Medical Journal* began 1934 with some modifications in its editorial policies. Hereafter all manuscripts read at the annual meeting of the state medical society will be considered by an editorial board with the understanding that only such papers will be published as are considered suitable by the board. Heretofore, practically all papers read at meetings of the society have been accepted. This has prevented the devotion of space to miscellaneous and volunteered contributions. The *Wisconsin Medical Journal* has also adopted a new cover without advertising and handsomely printed on an unusually fine quality of paper.

The *New York State Journal of Medicine* announces with the first issue of 1934 that it proposes henceforth to carry only clean advertising and to be free from announcements of questionable products. A new editorial board has been established. The periodical appears in a new size and with a new type face. The editorials, of which there are many, are signed by individual writers and apparently were prepared especially for the *New York State Journal of Medicine*. The addition of this periodical to those which follow established standards of advertising leaves but one of the state medical journals outside the pale.

The trend toward higher standards in state medical journalism has been consistently maintained for more than a quarter of a century. The progress here recorded is significant not only for the members of medical organizations in the states concerned but for all of American medicine. Perhaps the day may yet come when all medical periodicals, including the bulletins of county medical societies, will realize the importance of setting the highest possible ethical requirements, particularly in the advertising of foods and drugs, which come so intimately into relationship with the practice of medicine, and also in the announcements of medical institutions and other accessories to medical practice.

Current Comment

AMERICAN MEDICAL ASSOCIATION BROADENS RADIO PUBLIC HEALTH EDUCATION

In cooperation with the National Broadcasting Company, the American Medical Association has been for some time undertaking a considerable amount of education of the public in health by means of the radio. Under the heading "Association News" in this week's issue of THE JOURNAL we are privileged to present a new list of stations, forty in number, which now carry the American Medical Association broadcast every Monday afternoon from 5 to 5:15 Eastern standard time, 4 to 4:15 Central standard time, and correspondingly for Western stations. These outlets extend from Canada to the Gulf and from the Atlantic to the Pacific Ocean. The broadcasts are for the most part being made by Dr. W. W. Bauer, director of the Bureau of Health and Public Instruction of the American Medical Association, and Dr. Morris Fishbein, editor of THE JOURNAL and of *Hygeia*. From time to time other officers and heads of departments of the Association will explain the functions and services of the Association to the public by this medium. Such an opportunity for reaching tremendous numbers of people with dependable material in the field of medicine has never been equaled. The Association owes a debt of gratitude to the National Broadcasting Company for making these facilities available without cost and for the public good.

A DIETARY INGENUITY

The instinctive ingenuity of man in securing an adequate diet, despite the great diversity of natural food products throughout the world and the limitations that are placed on the exercise of free choice, is to scientific observers a puzzle as well as a surprising phenomenon. Somehow, in the selection of his daily regimen, man seems to "muddle through." An interesting illustration of what this may mean is afforded in some of the eating habits of the Far East. The West has become accustomed to regard milk almost as a sine qua non in supplying adequate amounts of calcium for human needs; at any rate the mammary secretion is *facile princeps* in the preferred sources of supply of an element that looms large in its significance for bodily well being. Among many Orientals, milk and milk products are not customarily in use, yet there can be

no doubt that their diet is as a rule adequate in calories, protein and calcium. In explanation of this, many Chinese, for instance, are said to eat anything that tastes and looks good, such as butterfly wings, rose petals and shark's fins, and they have a great many varieties of food in their diet even though they do not use milk or milk products. Soy beans, boiled or baked, and soy bean sprouts or soy bean curd are used extensively and are inexpensive.[1] An interesting custom in the diet of certain lactating mothers is related by a trained observer. It is considered a great honor to present to a pregnant woman a pair of pig's feet. These are chopped fine, covered with rice vinegar (made by fermenting rice), stewed ten or twelve hours, and sealed in jars. Each mother hopes to have at least twelve pairs of pig's feet prepared and set away before the baby arrives. After the baby comes, the pig's feet are served to the lactating mother four or five times a day. From recent analyses of comparable food materials it appears that considerable calcium may become available by the described culinary process. Indeed, as Frances Clinton has pointed out, it is possible that this peculiar method of cookery used extensively by the Chinese may be of particular value in providing adequate amounts of calcium.

SESQUICENTENNIAL OF THE NEW HAVEN COUNTY MEDICAL ASSOCIATION

The history of medicine in the United States is still comparatively brief and noteworthy events are sufficiently limited in number to endow their passing anniversaries with more than indifferent significance. Only a few weeks ago there were celebrations, in many parts of the country, of the one hundredth anniversary of the publication in 1833 of Dr. William Beaumont's classic book called Experiments and Observations on the Gastric Juice, and the Physiology of Digestion. Before his time, as a recent writer has remarked, knowledge of the functions of the human stomach was vague and doubtful. Beaumont ushered in a new period based on his direct observations of the stomach at work. The medical profession in Connecticut, January 5, joined in the sesquicentennial of the New Haven County Medical Association. The event is of more than local interest because this association, starting in 1784, was the second to be organized in all America, the first having been the Massachusetts society of 1781. Special importance attaches to the New Haven County Association because it published the first volume of medical transactions—papers reporting cases from American medical practice. In the early days the association exercised the right to confer the degree of doctor of medicine. This prerogative was resumed for the first time in more than a century when, during the sesquicentennial exercises, the degree of M.D. in honoris causa was bestowed on the dean of American physiologic chemists, Prof. Russell H. Chittenden, who, as noted by the orator of the occasion, "both directly and through his pupils has influenced medical progress along chemical lines to an extent that can neither be estimated nor overestimated."

1. These and other details have been garnered from Notes on Chinese Diets, by Clinton, Frances: J. Home Economics **25**:871 (Dec.) 1933.

Association News

ANNUAL CONGRESS ON MEDICAL EDUCATION, LICENSURE AND HOSPITALS

Program of Meetings to Be Held in Chicago, February 12 and 13

The thirtieth Annual Congress of the Council on Medical Education and Hospitals of the American Medical Association will be held in the Palmer House, Chicago, Feb. 12 and 13, 1934. The Federation of State Medical Boards of the United States and the American Conference on Hospital Service will participate in the congress. The program follows:

MONDAY, FEBRUARY 12, 10 A. M.

RAY LYMAN WILBUR, M.D., Presiding

Review of the Accomplishments of the Council on Medical Education and Hospitals
Ray Lyman Wilbur, M.D., Chairman, Stanford University, Calif.

Philosophy of Professional Licensure
Justin Miller, J.D., Dean, Duke University School of Law, Durham, N. C.

Discussion: Alphonse M. Schwitalla, S.J., Ph.D., St. Louis.

Medical Education and Its Relationship to Society as a Whole
Robert G. Sproul, LL.D., President, University of California, Berkeley.

Discussion: E. P. Lyon, M.D., Minneapolis.

The Restoration of the General Practitioner
Dean Lewis, M.D., President, American Medical Association, Baltimore.

Discussion: James B. Herrick, M.D., Chicago; J. H. Musser, M.D., New Orleans.

Red Lacquer Room

MONDAY, FEBRUARY 12, 2 P. M.

JOINT SESSION OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS AND THE AMERICAN CONFERENCE ON HOSPITAL SERVICE

MERRITTE W. IRELAND, M.D., Presiding

Responsibility of the Hospital Trustee and the Relationship Between the Trustees and the Staff
Howard S. Cullman, President, Beekman Street Hospital, New York.

Discussion: Nathaniel W. Faxon, M.D., Rochester, N. Y.

Symposium: Size and Scope of a University Clinic
Henry Houghton, M.D., Director, University of Chicago Clinics.
Nathan B. Van Etten, M.D., Vice Speaker, House of Delegates, American Medical Association, New York.
John H. J. Upham, M.D., Dean, Ohio State University College of Medicine, Columbus.

Discussion: William D. Haggard, M.D., Nashville, Tenn.; John Wyckoff, M.D., New York; Austin A. Hayden, M.D., Chicago.

Red Lacquer Room

TUESDAY, FEBRUARY 13, 9 A. M.

JOINT SESSION OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS AND THE FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES

G. M. WILLIAMSON, M.D., Presiding

The Privilege of Reexamination in Professional Licensure
Bernard C. Gavit, J.D., Dean, Indiana University School of Law, Bloomington.

Discussion: G. M. Williamson, M.D., Grand Forks, N. D.

Résumé of the History and Present Application of Medical Licensure in the States
J. N. Baker, M.D., Secretary, Alabama Board of Medical Examiners, Montgomery.

Discussion: A. T. McCormack, M.D., Louisville.

Reciprocity Agreements
J. R. Neal, M.D., Secretary, Professional Committee for Medicine, Illinois Department of Registration and Education, Springfield.

Discussion: Harold Rypins, M.D., Albany, N. Y.

Medical Licensure in South America—Preliminary Survey
William D. Cutter, M.D., Secretary, Council on Medical Education and Hospitals, Chicago.

Discussion: Frederic W. Schlutz, M.D., Chicago.

Red Lacquer Room

TUESDAY, FEBRUARY 13, 2 P. M.

REGINALD FITZ, M.D., Presiding

The Importance of Introducing Psychiatry into the General Internship
Franklin G. Ebaugh, M.D., Director, Division of Psychiatric Education, National Committee for Mental Hygiene, Denver.

Discussion: C. C. Burlingame, M.D., Hartford, Conn.

The Incorporation of the Principles of Preventive Medicine in Clinical Teaching
Wilson G. Smillie, M.D., Professor of Public Health Administration, Harvard University, Boston.

Discussion: C. Sidney Burwell, M.D., Nashville.

The Teaching of Industrial Hygiene
Leverett D. Bristol, M.D., Health Director, American Telephone and Telegraph Company, New York.

Discussion: Edward C. Holmblad, M.D., Chicago.

The Function of the Physician in Public Health Education
W. W. Bauer, M.D., Director, Bureau of Health and Public Instruction, American Medical Association, Chicago.

Discussion: H. S. Cumming, M.D., Washington, D. C.

Red Lacquer Room

TUESDAY, FEBRUARY 13, 2 P. M.

THE FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES
G. M. WILLIAMSON, M.D., Presiding

Traffic in Narcotics by Licensed Physicians
H. J. Anslinger, United States Commissioner of Narcotics, Washington, D. C.

Discussion: W. L. Treadway, M.D., Washington, D. C.

The Use of the Injunction Procedure in Enforcing Medical Practice Acts
F. Manley Brist, LL.B., Attorney, Minnesota Board of Medical Examiners, St. Paul.

Discussion: H. M. Platter, M.D., Columbus, Ohio.

Room 14

Federation Dinner. Monday, 6:30, Palmer House. The Federation of State Medical Boards of the United States. Address: Relation of Education to Licensure. Walter A. Jessup, Ph.D., President, State University of Iowa, Iowa City, Presidential Address of G. M. Williamson, M.D., Informal round table discussion.

Evening Meeting. Monday, 8:15, Red Lacquer Room, Palmer House. American Conference on Hospital Service. Address: The Old and the New in Medicine. Dean Lewis, M.D., President, American Medical Association, Baltimore.

Luncheon. Tuesday, 12:30, Grand Ball Room, Palmer House. Central Council for Nursing Education. Address: What Is the Future of Nursing? Hugh Cabot, M.D., Professor of Surgery, University of Minnesota Graduate School of Medicine, Minneapolis.

MEDICAL BROADCAST FOR THE WEEK

Talks over Network of the National Broadcasting Company

The American Medical Association broadcasts on a coast-to-coast network each Monday afternoon from 4 to 4:15, central standard time (5 o'clock, Eastern standard time; 3 o'clock, Mountain standard time, and 2 o'clock, Pacific standard time). The subject for Monday, January 29, is "Warm Water Healing." The speaker will be Dr. W. W. Bauer, director, Bureau of Health and Public Instruction of the American Medical Association. The program is now being broadcast by the following stations:

New England States:
WBZ Boston
WBZA Springfield, Mass.
Middle Atlantic States:
WJZ New York
WSRY Syracuse
WHAM Rochester
KDKA Pittsburgh
East North Central States:
WGAR Cleveland
WCKY Cincinnati
WENR Chicago
WJR Detroit
WIBA Madison, Wis.
West North Central States:
KSTP St. Paul
WEBC Duluth
WDAY Fargo
KFYR Bismarck
KOIL Omaha
KWCR Cedar Rapids, Iowa
WREN Kansas City, Mo.
South Atlantic States:
WBAL Baltimore
WMAL Washington
WJAX Jacksonville
WIOD Miami
WFLA Tampa
WSB Atlanta
East South Central States:
WSM Nashville
WMC Memphis
WJDX Jackson, Miss.
West South Central States:
WSMB New Orleans
KVOO Tulsa
WFAA Dallas
KPRC Houston
KTBS Shreveport
KTHS Hot Springs
WOAI San Antonio
Mountain States:
KOA Denver
KDYL Salt Lake City
Pacific States:
KGO San Francisco
KFI Los Angeles
KHQ Spokane
KFSD San Diego

Radio Talks from Station WBBM

The American Medical Association broadcasts on Tuesday and Thursday mornings from 8:55 to 9 o'clock, central standard time, over Station WBBM (770 kilocycles, or 389.4 meters).

The subjects for the week are as follows:

January 30. New Findings in Oral Hygiene.
February 1. The Health Examination.

There is also a fifteen minute talk sponsored by the Association on Saturday morning from 8:55 to 9:10 over Station WBBM.

The subject for the week is as follows:

February 3. Medicine and Superstition.

THE CLEVELAND SESSION

Demonstrations on Fresh Pathology in the Scientific Exhibit

The special exhibit on fresh pathology will be shown again in the Scientific Exhibit at the Cleveland Session, June 11-15. Dr. B. S. Kline of Cleveland will be in charge of the exhibit and will be assisted by leading pathologists, who will give practical talks and personal demonstrations continuously throughout the week.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Outbreak of Spinal Meningitis.—Six deaths were reported in a recent outbreak of spinal meningitis at the Tucker Prison Farm, it was reported, January 5. At that time the camps were placed under quarantine and local health officials had requested federal authorities for assistance in curbing the outbreak. Plans were going forward to examine every person at the prison farm, including officials, to determine whether the disease was being transmitted by a carrier.

New Medical School Building.—Funds totaling $500,000, provided through a loan and a grant by the Public Works Administration, make possible the construction of a new building at the University of Arkansas School of Medicine, Little Rock, newspapers announce. The building will be erected on a site facing the city park, and it is expected to be ready for opening next fall. The building will be five stories high and offer accommodations for 300 students. It will house all departments of the medical school. Under present arrangements, the first two years' work has been conducted at the War Memorial Building, and the last two at various hospitals. Construction of a new building was authorized by the legislature in 1931 through the sale of bonds but was never carried out. Plans for the building were completed eighteen months ago.

COLORADO

Society News.—At a meeting of the Crowley County Medical Society in Ordway, December 14, Drs. George B. M. Baker, Rocky Ford, and William S. Bartholomew, Manzanola, discussed Huntington's disease and normal digestion, respectively.——A symposium on cancer was presented before the Fremont County Medical Society, December 18, at Florence, by Drs. George W. Bancroft, Colorado Springs, and Josephine N. Dunlop and George A. Unfug of Pueblo.——Dr. John E. Ford, Grand Junction, spoke on epilepsy before the Mesa County Medical Society, November 21.——At a meeting of the Northeast Colorado Medical Society in Sterling, December 14, Dr. Kemp G. Cooper, Denver, gave a lantern slide presentation of "Nasal Obstruction and Tumors of the Sinuses."

CONNECTICUT

Personal.—Dr. George T. Pack, New York, has been appointed assistant clinical professor of surgery at Yale University School of Medicine, New Haven, on a part time basis. ——Dr. Stanley Harcourt Peppard, formerly director, bureau of mental hygiene, Connecticut State Health Department, has been appointed medical director at "Blythewood," Greenwich. ——Dr. Israel S. Otis recently submitted his resignation as city physician of Meriden. —— Dr. Alphonse Fontaine has been appointed health officer of the borough of Danielson. —— Dr. Ettore F. Carniglia has been named health officer of Windsor Locks, succeeding the late Dr. Joseph A. Coogan.

ILLINOIS

Personal.—Dr. Wilmot L. Ransom, Rockford, was made an honorary member of the Winnebago County Medical Society at its meeting, January 9. Dr. Ransom has practiced in the county for sixty years.——Dr. John G. Young has been named physician for the state reformatory at Pontiac, succeeding Dr. James A. Marshall.——Dr. Robert C. Hitchings, Donovan, was guest of honor at a banquet, November 26, on the occa-

sion of his sixty-seventh birthday.——Dr. Robert R. Smith, Mount Vernon, has been appointed managing officer of the Kankakee State Hospital.

Chicago

Study of Maternal and Fetal Mortality.—The Chicago Gynecological Society recently organized a maternal welfare committee to make a study of maternal and fetal mortality in Chicago. The obstetric mortality and morbidity of mothers and babies will be considered with a view to studying controllable factors.

Society News.—Dr. Otto H. Schwarz, St. Louis, addressed the Chicago Gynecological Society, January 19, on "Treatment of the Late Toxemias of Pregnancy."——The Chicago Society of Allergy was addressed, January 15, by Dr. Ludvig Hektoen and William H. Welker, Ph.D., on "Methods of Immunization" and "Autogenicity of Proteins," respectively.——Dr. Roderic P. O'Connor, San Francisco, spoke before the Chicago Ophthalmological Society, January 15, on "Cataract Extraction by the Undetached Conjunctival Bridge Method After Preliminary Iridectomy."——At a meeting of the Chicago Neurological Society, January 18, the speakers included Ralph W. Barris on "Optic Connections of Midbrain and Thalamus."——Dr. Kamil Schulhof addressed the McDonagh Society for Clinical Research, January 19, on "Significance of Electric Charges for the Transport of Substances in the Tissues."——Speakers before the Chicago Orthopedic Club, January 19, were Drs. Peter A. Bendixen, Davenport, Iowa, on "Fractures of the Elbow," and Claud R. G. Forrester, "Reduction of Fractures Under Local Anesthesia Together with Ambulatory Treatment."——Among others, Dr. Jerome R. Head discussed "Clinical Observations on the Intrapleural Pressure" before the Chicago Society of Internal Medicine, January 22.

INDIANA

Portrait of Dr. Henry.—Memorial services in honor of the late Dr. Alfred Henry in the Indianapolis City Hospital, December 12, marked the first anniversary of his death. His portrait was presented to the tuberculosis clinic of the hospital by the Marion County Tuberculosis Association, of which he was at one time president. Dr. Edward M. Amos, president of the association, made the presentation to Dr. Charles W. Myers, superintendent of the hospital. Among other offices he held, Dr. Henry served as president of the National Tuberculosis Association and the Mississippi Valley Conference on Tuberculosis.

Immunization Campaign.—The plan to immunize every child in the state against diphtheria and smallpox has been placed in operation. However, no child will be immunized whose parents do not specifically request it. Material for the immunization of 75,000 children was provided through funds made available in the state division of public health. Children of parents unable to pay will be given treatments without charge by family physicians, who will procure their materials free from the state division of public health. It is expected that the costs of immunizing materials for the indigent children of the state will not exceed $15,000. The program was initiated by the Indiana Advisory Public Health Council, which includes representatives of medical and lay organizations interested in child welfare.

Session on Maternal Health.—A program on maternal health was presented before the Carroll County Medical Society in Delphi, December 8, by the department of obstetrics of Indiana University School of Medicine and the state board of health. In the afternoon, clinics were conducted by Drs. Arthur M. Mendenhall on the thyroid and pregnancy; John F. Kelly, toxemias of pregnancy, and Arthur J. Micheli, edema and varicosities. Addresses were given by Dr. Mendenhall, on hemorrhages in obstetrics; Micheli, on prenatal care in general practice, and Kelly, on home obstetrics. Dr. James W. Jackson of the state board of health also spoke. An evening session for both physicians and laymen was addressed by Drs. Mendenhall on importance of obstetrics, and Ernest O. Asher, better obstetrics.

Society News.—Dr. Richard H. Miller, Boston, spoke before the Indianapolis Medical Society, January 16, on "Ulcer and Cancer of the Stomach."——The Grant County Medical Society was addressed in Marion, December 27, by Dr. Charles P. Emerson, Indianapolis, on "Medicine in the Orient."——At a meeting of the Hancock County Medical Society in Greenfield, December 11, it was decided to admit dentists to membership on their payment of the dues of $1. With the admission of two new members the society now has a 100 per cent membership of physicians of the county. Speakers were Paul A. Allen and Dr. Edgar A. Hawk, New Palestine, on "Dental Practice During Pregnancy" and "Cesarean Section and Its Sequelae," respectively.——Dr. Stanley Milton Goldhamer, Ann Arbor, Mich., addressed the Northeastern Indiana Academy of Medicine in Kendallville, December 21, on pernicious anemia.

KANSAS

Society News.—The Anderson County Medical Society was addressed, November 15, by Dr. James R. Nevitt, Kincaid, on undulant fever. Dr. Louie F. Barney, Kansas City, spoke before the society, December 27, on "Medicine, Past and Present."——The Washington County Medical Association was recently organized with Dr. Fred H. Rhoades, Hanover, as president.

KENTUCKY

Bill Introduced.—H. 13, to amend the workmen's compensation act, proposes to make compensable "injuries or death due to the inhalation of any kind of gas and the inhalation of silica dust."

Health Commissioners Appointed.—Dr. Hugh Rodman Leavell has been named health commissioner of Louisville and Dr. John D. Trawick, of Jefferson County. They plan to coordinate the city and county services to avoid duplication, it was announced. Dr. Trawick has practiced in Louisville for many years but will not continue private practice during his term as health officer. Dr. Leavell is a native of Louisville and a graduate of Harvard University Medical School, class of 1926. He has been in charge of the student health center of the University of Louisville for several years.

MASSACHUSETTS

Dr. Mallory Honored.—A special issue of the *American Journal of Pathology* has been dedicated to Dr. Frank Burr Mallory, since 1928 professor of pathology, Harvard Medical School, Boston, in commemoration of his seventieth birthday and of the opening of the Mallory Institute of Pathology of the Boston City Hospital. Graduating from Harvard in 1890, Dr. Mallory became associated with the medical school in 1891. Since then he has held several teaching positions, becoming professor of pathology in 1928. He had been pathologist to the hospital since 1908. He retired from these positions last year when he reached his seventieth birthday, becoming consulting pathologist to the hospital. A member of several societies, Dr. Mallory was made editor-in-chief of the *Journal of Medical Research* in 1923, continuing in that capacity when its name was changed, in 1925, to the *American Journal of Pathology*. At a dinner in his honor, December 13, speeches were made by Mr. F. C. Hood, representing Dr. Mallory's class at Harvard College; Dr. Elliott C. Cutler, representing the surgical profession; Dr. Hans Zinsser, representing bacteriologists, and Dr. James Ewing, New York, representing pathologists. Dr. Simeon Burt Wolbach was toastmaster. Dr. Mallory was presented with a complete moving picture outfit and a silver pitcher as tokens of the esteem of his former pupils and his friends on the occasion of his retirement and the dedication of the building.

Bills Introduced.—S. 63 proposes that any physician selected by an employee injured in the course of his employment or by any person injured as the result of the operation of a motor vehicle shall be paid directly, respectively, by the insurer of the employer or by the insurer of the person whose motor vehicle caused the injury. H. 192 proposes to prohibit physicians from dispensing "prescriptions" except "in an emergency, at the bedside, under the same conditions as pertain to the administration of narcotics, and in towns and villages in which there is no store with a registered pharmacist in attendance." H. 393, to supplement the dental practice act, proposes to provide the following grounds for which a license may be revoked: (1) conviction of a crime involving moral turpitude, (2) incompetence to continue practice because of persistent inebriety or addiction to drugs, (3) affliction with one or more of the "specific" infections, (4) dishonorable or grossly unprofessional conduct, or (5) the use of fraudulent or misleading advertisements. H. 509, to amend the medical practice act, proposes that "the practice of medicine shall include the administering to human beings of ether, chloroform, nitrous oxide gas or other substance or gas producing unconsciousness, except when administered by a registered dentist." H. 511 proposes to establish a board of registration of hairdressers and to regulate the occupation of hairdressing. Licentiates are to be prohibited from removing "superfluous hair or skin blemishes by direct application of an electric current."

MICHIGAN

Personal.—Dr. William C. Huyser, Kalamazoo, was elected president of the Kalamazoo Academy of Medicine, December 19.——Dr. Edwin R. VanderSlice has been appointed health officer of Lansing, succeeding the late Dr. S. Rowland Hill.

To Study European Health Insurance.—Nathan Sinai, Dr.P.H., professor of public health, University of Michigan School of Medicine, Ann Arbor, and Dr. Henry A. Luce, Detroit, past president of the Wayne County Medical Society, recently sailed for Europe to make a study of health insurance plans, newspapers report. The Michigan State Medical Society is sponsoring this trip as a part of its survey of health insurance.

MINNESOTA

Anniversary Dinner.—Dr. Lester R. Dragstedt, professor of surgery, University of Chicago, will be the guest speaker at the twelfth annual anniversary dinner of the Minneapolis Surgical Society at the Minneapolis Club, February 1. His subject will be "The Etiology of Gastric Ulcer."

"Medical Service Company" to Be Dissolved.—The attorney general of the state, December 2, instituted quo warranto proceedings against the Medical Service Company, a Minnesota corporation which had been shown to be practicing medicine. The object of the proceedings was to have the corporate charter of the Medical Service Company forfeited to the state and to restrain the corporation from practicing medicine. The corporation agreed, however, to suspend activities and to surrender its charter on or before February 20.

Dr. Lewis to Give the First Judd Lecture.—Dr. Dean Lewis, President, American Medical Association, and professor of surgery, Johns Hopkins University School of Medicine, Baltimore, will deliver the first Judd lecture at the University of Minnesota, February 13, on "The Hypophysis, the Master Gland: The History, Physiology, and the Clinical Symptoms Associated with Its Lesions." This lectureship in surgery, to be given annually, was endowed by Dr. Edward Starr Judd, professor of surgery in the Mayo Foundation, Rochester, and a former president of the American Medical Association.

Parrakeets Barred from State.—A resolution was adopted by the Minnesota State Board of Health at a recent special meeting, prohibiting the shipment of parrakeets into the state until such time as it can be demonstrated that the aviaries from which they are shipped are free from infection. The resolution refers to the appearance of psittacosis in other states which have been traced to infected aviaries in California. Since it is practically impossible to exclude carriers of the infection from infected areas and because infected birds are continually reported to be coming from California and foreign ports, the board feels that the ban is necessary.

MISSISSIPPI

Bill Passed.—H. 95 has passed the House, proposing to amend the law forbidding the sale, barter or giving away of commodities intended for smoking, containing cannabis indica, so as to forbid also the keeping or possessing of such commodities.

Bills Introduced.—S. 108 proposes that the South Mississippi Charity Hospital, the Matty Hersee Hospital, the Jackson Charity Hospital, the Vicksburg Charity Hospital and the Natchez Charity Hospital be abolished as public charity hospitals and that the boards of trustees of those hospitals be authorized to dispose of all of the real and personal property of those hospitals. H. 155, to amend the pharmacy practice act, proposes, among other things, that (1) the provisions of the act shall not be held to prevent "physicians from compounding their own prescriptions," instead of exempting physicians from the provisions of the act, as the present act does, and (2) applicants for licensure as registered pharmacists must be graduates of recognized schools of pharmacy and, in addition, must have had one year of practical experience in a drug store where physicians' prescriptions are compounded.

MISSOURI

Meeting in Honor of Dr. Starkloff.—The St. Louis Medical Society will offer its program, January 30, in appreciation of the years of service of Dr. Max Starkloff, formerly health commissioner of St. Louis. Speakers will include Dr. Elsworth S. Smith, who will review Dr. Starkloff's career, and Dr. Arthur T. McCormack, state health officer of Kentucky.

"Medical School" Discontinued.—The *Bulletin* of the Kansas City University of Physicians and Surgeons, Vol. 22, No. 1, January, 1934, announces that in September 1933 the Kansas City University of Physicians and Surgeons was returned to the original management of the Central College of Osteopathy; also that "it is now deemed advisable to discontinue the Medical school and operate only Central College offering a complete course of study embodying all the courses of modern Osteopathy." The degree of doctor of medicine will not be conferred.

Dr. Elschnig Conducts Course in Ophthalmology.—Dr. Anton Elschnig, professor and head of the department, German University Eye Clinic, Prague, Czechoslovakia, will give a course in ophthalmology in St. Louis, February 13-17, under the auspices of the ophthalmic section of the St. Louis Medical Society and the St. Louis Ophthalmic Society. Lectures will begin at 3:30 p. m., except on Saturday, when there will be an operative demonstration from 2 to 5 p. m. The fee is $15. Registration may be made with Dr. Lawrence T. Post, McMillan Hospital, 517 South Euclid Avenue, St. Louis.

NEW YORK

Bill Introduced.—S. 103 proposes to create a board of barber examiners and to regulate the practice of barbering.

Society News.—Speakers before the Onondaga County Medical Society, Syracuse, January 2, were Drs. Catherine M. Knowlton, who reported a clinical and experimental study of serum sickness, and Drs. Orren D. Chapman and Joseph R. Wiseman, who presented papers on "Hypersensitiveness in Animals and Man" and "Clinical Interpretation of Allergic Conditions," respectively. Dr. Edward M. Livingston, New York, addressed the society, December 5, on "Abnormalities of the Superficial Veins as an Aid to Abdominal Diagnosis."——Dr. James Alexander Miller, New York, addressed the Medical Society of the County of Westchester, White Plains, January 16, on "Diseases of the Lungs Following Upper Respiratory Infections." The exhibit of the American Society for the Control of Cancer, which was shown at the Century of Progress Exposition in Chicago in 1933, was shown at this meeting.

New York City

Hospital News.—Dr. I. Newton Kugelmass delivered an afternoon lecture at the New York Polyclinic Medical School and Hospital, December 19, on "Hemorrhagic Diseases in Infancy and Childhood."——Dr. Arthur A. Landsman delivered a lecture on "Horseshoe Fistula" at the Jewish Memorial Hospital, January 9.

The Salmon Lectures.—Dr. Charles Macfie Campbell, professor of psychiatry, Harvard University Medical School, Boston, will deliver the Thomas W. Salmon Memorial Lectures for 1934. His subject will be "Trends in Psychiatry" and the dates, April 13, 20 and 27. Dr. Campbell is also director of the Boston Psychopathic Hospital and is a former president of the Massachusetts Society for Mental Hygiene. The Salmon Fund was established in January 1931 as a memorial to the late Dr. Salmon, who died suddenly, Aug. 13, 1927. In addition to the annual lectures, the fund provides grants for financial assistance to research projects. It is administered by the New York Academy of Medicine.

Committee Charges Abuse of Hospital Charity.—A committee of the Bronx County Medical Society, headed by Dr. Nathan B. Van Etten, announced, January 13, the results of an investigation of the financial condition of 1,000 charity patients of Morrisania City Hospital. Cases were classified as follows: 583 were unable to pay; 118 were able to pay without question; 107 were able to pay with help from parents or relatives; 85 gave false addresses; 107 could possibly have paid a physician, obtained credit or paid minimum rates at a semi-private institution. Among the "charity patients" were found many "city employees, some drawing large salaries, and members of their families, receiving free treatment and free operations," the report said. As the cost to the city for patients is $4.12 per day and each patient stays an average of eleven days in the hospital, it was estimated that if 10 per cent of the 16,000 patients cared for at Morrisania were able to pay, the city was defrauded of $72,512. The same rate for the three general hospitals in the Bronx would bring the loss to more than $200,000. Adding those in the doubtful classes, the committee estimated the total loss at about $600,000. The report recommended the establishment of a credit agency in every city hospital to determine the financial responsibility of all applicants and a central bureau to coordinate all the agencies. Dr. Van Etten is medical director of Morrisania Hospital.

OHIO

State Society in New Quarters.—The Ohio State Medical Association has moved into new offices in the Hartman Building, 79 East State Street, Columbus.

Society News.—Drs. William B. Morrison and Roy E. Krigbaum addressed the Columbus Academy of Medicine, December 11, on progress in surgery and obstetrics, respectively.——Dr. Arthur G. Davis, Erie, Pa., addressed the Ashtabula County Medical Society, Conneaut, on "Treatment of Fractures of the Vertebrae and Various Open Reduction Operations Involving the Heel, Forearm, Tibia and Hip."——Dr. Myron Metzenbaum, Cleveland, addressed the Dayton Oto-Laryngological and Ophthalmological Society, December 12, on "Reconstructive Surgery of the Eyelids, Cleft Palate and Nasal Surgery."——The Union Medical Association of the Sixth Councilor District met, January 10, at Massillon State Hospital, Massillon. Among the speakers were Drs. Arthur C. Gillam of the hospital staff, on "Hallucinations and Diagnosis"; John D. O'Brien, Canton, "Treatment of Neurosyphilis," and Arthur G. Hyde, superintendent of the hospital, "Nine Years' Experience with Malaria in the Treatment of General Paralysis." Dr. Clyde L. Cummer, Cleveland, president of the state medical association, also made an address. ——Dr. George M. Curtis, Columbus, addressed the Cincinnati Academy of Medicine, January 8, on "Iodine Metabolism in Toxic Goiter" and Dr. John A. Kolmer, Philadelphia, January 15, on "Criteria for Evaluating Compounds Employed in the Treatment of Syphilis and the Amount of Treatment to Be Given."——Dr. Norman F. Miller, Ann Arbor, Mich., addressed the Academy of Medicine of Toledo and Lucas County, December 1, on pelvic infections.

PENNSYLVANIA

Personal.—Dr. Ray P. Moyer has been appointed health officer of Pittsburgh, succeeding Dr. William W. McFarland. ——Dr. Fred W. Heyer, Nanticoke, has been appointed chief surgeon at the Nanticoke State Hospital to succeed his brother, the late Dr. Edward G. Heyer.

Society News.—Speakers at the meeting of the Allegheny County Medical Society, Pittsburgh, January 16, were Drs. Harry Leonard Baer, on tularemia; George J. Wright, pernicious anemia, with special consideration of neurologic aspects, and Edwin P. Buchanan, carcinoma of the breast. The Pittsburgh Medical Center presented a scientific exhibit.

Philadelphia

Personal.—Dr. Pascal F. Lucchesi has been appointed superintendent of the Philadelphia Hospital for Contagious Diseases; he has been acting in this capacity since the death of Dr. Samuel S. Woody, Dec. 28, 1931.——Dr. Thomas A. Shallow, professor of surgery, Jefferson Medical College, has been named a member of the Board of City Trusts.

Society News.—The Philadelphia County Medical Society devoted its meeting, January 17, to "Diabetes—the Problem of the Practicing Physician." Speakers were Drs. Howard W. Schaffer, on diagnosis and laboratory control; Joseph T. Beardwood, Jr., standardization of diabetic patients with diet and insulin; Reuben Davis, Jr., prevention and control of common complications, and Edward S. Dillon, diabetes as a public health problem.

RHODE ISLAND

Bill Introduced.—H. 521 proposes to make it a misdemeanor for any authorized officer or investigator to interrogate any person injured in an accident, as to the cause or nature of the accident or injury, until the injured person has received first aid or other necessary treatment.

VIRGINIA

Dr. Leigh Honored.—The Norfolk County Medical Society recently conferred on Dr. Southgate Leigh, Norfolk, the title of honorary member. Dr. Leigh is a former president of the county society, and also of the Medical Society of Virginia, the Seaboard Medical Association, the Tri-State Medical Association and various special societies. In 1929 he was awarded the Norfolk Distinguished Service Medal in recognition of his interest in the city's welfare. Dr. Leigh has also been a member of the House of Delegates of the American Medical Association for a number of years.

Society News.—Dr. Richard W. Garnett, Danville, among others, addressed the South Piedmont Medical Society at a meeting in Danville, November 28, on eugenics and birth control.——Drs. John Lewis Rawls, Suffolk, and Frank I. Steele, Windsor, were speakers before the Second District Medical Society at Smithfield, November 22, on hematuria and undulant fever, respectively.——Drs. William H. Toulson, Baltimore, and Kenneth F. Maxcy, University, addressed the Medical Society of Northern Virginia at Front Royal, November 20, on "Kidney Infections" and "Undulant Fever in Virginia," respectively.——Dr. William W. S. Butler, Jr., addressed the Roanoke Academy of Medicine, October 2, on "Roentgen-Ray Aids in Management of Prostatic Enlargement." ——Dr. Robert V. Funsten, University, addressed the Rockingham County Medical Society, Harrisonburg, December 12, on "Fractures About the Shoulder and Hip."——Sidney S. Negus, Ph.D., Richmond, among others, addressed the quarterly meeting of the Southside Virginia Medical Association at Petersburg, December 12, on the new federal Food and Drugs Act.

WISCONSIN

Graduate Lectures in Physiology.—Eight lectures in physiology will be presented at Marquette University Medical School during February and March by the educational committee of the Medical Society of Milwaukee County. Speakers and subjects will be:

February 5, Dr. Raphael Isaacs, Ann Arbor, Mich., Physiology of the Blood.
February 12, Walter J. Meek, Ph.D., Madison, Physiology of Circulation.
February 19, Dr. John A. E. Eyster, Madison, Cardiac Output in Health and Disease.
February 26, Raymond C. Herrin, Ph.D., Madison, Physiology of Respiration.
March 5, Dr. Walter C. Alvarez, Rochester, Minn., Anatomy and Physiology of the Gastro-Intestinal Tract and the Liver.
March 12, Dr. Andrew C. Ivy, Chicago, The Sympathetic Nervous System.
March 19, Dr. Arno B. Luckhardt, Chicago, Endocrinology.
March 26, Dr. Harry A. Beckman, Milwaukee, Water Balance.

GENERAL

Health Agencies Move.—The National Tuberculosis Association announces its removal, along with other members of the National Health Council, from 450 Seventh Avenue to 50 West Fiftieth Street, New York.

Meeting of Bacteriologists.—Dr. Milton J. Rosenau, Boston, was elected president of the Society of American Bacteriologists at the annual session in Philadelphia, December 28. Karl F. Meyer, Ph.D., San Francisco, was named vice president and James M. Sherman, Ph.D., Ithaca, N. Y., reelected secretary. Dr. Ludvig Hektoen, retired head of the department of pathology, Division of Biological Sciences, University of Chicago, was elected an honorary member, said to be the first so chosen since 1917.

Change of Status in Licensure.—The California State Board of Medical Examiners has reported the following:

Dr. Louis A. Frary, Los Gatos, placed on probation for five years, during which time he shall not apply for or possess a narcotic permit, or have narcotics in his possession.
Dr. James A. Hadley, Arcata, license revoked, October 19, for narcotic violation.
Dr. Matthew J. Marmillion, Los Angeles, license revoked, October 19, for alleged illegal operation; now serving a sentence of from ten years to life in San Quentin Prison.
Dr. Roy F. Ruth, Los Angeles, license revoked, October 19, for narcotic conviction.
Dr. Daniel B. van Wagenen, Ocean Beach, license revoked, October 19, for alleged illegal operation.
Dr. Isidor A. Wallach, Los Angeles, placed on probation for five years, having been found guilty of aiding and abetting two so-called beauty specialists, October 19.
Dr. Clayton E. Wheeler, San Francisco, placed on probation for five years with certain restrictions, for alleged deceptive advertising.
Dr. Clark S. Smith, Oakland, license restored, October 16, and placed on five years' probation, without narcotic privileges.
Dr. Joseph T. Wrenn, San Francisco, license restored, October 16, and placed on five years' probation.
Dr. Simon R. Zachariah, San Francisco, license restored, October 16, and placed on five years' probation, without narcotic privileges.

The Department of Health of West Virginia reports:

The license of Dr. Elmer Groves Kesler, Williamsburg, revoked in March, 1932, was restored, November 17.

The New York State Board of Medical Examiners reports the following action taken November 23:

License of Dr. Samuel H. Kauffman, Rochester, revoked following his conviction of grand larceny; he is serving a sentence in Auburn prison.

Society News.—The American Association for the Study and Control of Rheumatic Diseases will convene in Cleveland, June 11. Dr. Ernest E. Irons, Chicago, is president of the association, which was organized in Milwaukee in June 1933. It is an outgrowth of the American Committee for the Control of Rheumatism, which continues to function as its advisory council.——Dr. Frank D. Dickson, Kansas City, was chosen president-elect of the American Academy of Orthopedic Surgeons at its annual meeting in Chicago, January 8-10, and

Dr. Philip D. Wilson, Boston, was installed as president. Other officers of the academy are Drs. Ernest W. Cleary, San Francisco, vice president; Eugene Bishop Mumford, Indianapolis, treasurer, and Philip Lewin, Chicago, secretary. The third annual meeting of the academy will be held in New York, Jan. 14-16, 1935.——At a recent meeting in Philadelphia of the board of governors of the Association of Physicians' Square Clubs of America, consisting of Masonic physicians, a program to expand the present facilities for graduate medical instruction was adopted. Masonic physicians who are interested are advised to write to the committee chairman, Dr. Joseph B. Wolffe, 1829 Pine Street, Philadelphia.

Medical Bills in Congress.—*Hearings:* The House Committee on the Judiciary held hearings, January 19, on H. R. 5978, a bill proposing to liberalize existing law relative to the dissemination of information relating to the prevention of conception, and articles, instruments, substances, drugs and medicines designed, adapted or intended for the prevention of conception. *Bills Introduced:* S. 2101, introduced by Senator Hayden, Arizona, proposes to prohibit the sending of unsolicited merchandise through the mails. S. 2119, introduced by Senator George, Georgia, provides for the further development of vocational education in the several states and territories. S. 2115, introduced by Senator Reed, Pennsylvania, proposes to provide additional benefits for veterans. Among other benefits, it provides that any World War veteran employed in the active military or naval service between April 6, 1917, and Nov. 11, 1918, in need of hospitalization or domiciliary care, who is unable to defray the necessary expenses therefor, is to be furnished such necessary hospitalization or domiciliary care in any Veterans' Administration facility, irrespective of whether the disease, disability or defect was due to service. A statement by the veteran that he is unable to defray the necessary expenses must be accepted by the Administrator of Veterans' Affairs as sufficient evidence of that fact. The following bills provide benefits for veterans similar to the benefits provided by S. 2115, the bill just discussed: S. 2120 and S. 2374, introduced by Senator George, Georgia; H. R. 6193, introduced by Representative Kelly, Pennsylvania; H. R. 6543, introduced by Representative Maloney, Connecticut; H. R. 6547, introduced by Representative Carter, Wyoming; H. R. 6608, introduced by Representative Edmonds, Pennsylvania; H. R. 6665, introduced by Representative Cartwright, Oklahoma; H. R. 6666, introduced by Representative McFarlane, Texas; H. R. 6667, introduced by Representative Marland, Oklahoma; H. R. 6668, introduced by Representative Cochran, Pennsylvania, and H. R. 6671, introduced by Representative Ellenbogen, Pennsylvania. S. 2121, introduced by Senator George (by request), Georgia, and H. R. 6150, introduced by Representative Rankin (by request), Mississippi, propose to repeal all public laws granting medical or hospital treatment, domiciliary care, pensions and other benefits to veterans and their dependents, for injury or disease incurred or aggravated in line of duty in the military or naval service, and to reenact certain sections of the World War Veterans' Act, 1924, as amended, relating to the granting of compensation and other allowances, and medical or hospital treatment for service-connected disability or death. S. 2355, introduced by Senator Stephens (by request), Mississippi, proposes to prevent the manufacture, sale or transportation of adulterated or misbranded or poisonous or deleterious foods, drugs, medicines, cosmetics and liquors, and for regulating traffic therein. The foregoing bill is similar to H. R. 6376, introduced by Representative Black, New York. H. R. 6555, introduced by Representative McSwain (by request), South Carolina, provides that for the purpose of promotion, longevity pay, and retirement there shall be credited to officers of the Medical Corps all active service as officers of the Medical Reserve Corps rendered by them between April 23, 1908, and April 6, 1917.

FOREIGN

General Conference of Chinese Medical Association.—The second general conference of the Chinese Medical Association will be held in Nanking, March 31-April 7. Complete information may be had from Dr. H. P. Chu, general secretary, Chinese Medical Association, 41 Tzepang Road, Shanghai.

International Radiologic Congress in Switzerland.—The fourth International Congress of Radiology will be held in Zurich, July 24-31, 1934. The program of the general meetings includes addresses on radiation treatment of various types of cancer, mitogenetic radiation, radiation genetics, short wave therapy, measurement of the dosage in x-ray and radium treatment, structure analysis and physical aspects of x-rays. Among American radiologists listed on the program are Drs. Joseph C. Bloodgood, Baltimore; Henry Schmitz, Chicago; George E. Pfahler, Philadelphia; Douglas Quick, New York; Hermann J. Muller, Ph.D., Austin, Texas, and Gioiacchino Failla, Ph.D., and Edith Quimby, both of New York. Dr. Hans R. Schinz is president of the congress and Dr. Hans E. Walther, Zurich, Gloriastrasse 14, is secretary.

Government Services

Annual Report of the Veterans' Administration

The Administrator of Veterans' Affairs, Frank T. Hines, submitted to the Congress of the United States, January 3, the Annual Report of the Veterans' Administration for the fiscal year ended June 30, 1933. The hospital load of the Veterans' Administration on that date was 33,795, a decrease of 10,046, or about 23 per cent, in the number on the last day of the previous fiscal year. Of the total load, 16,540 were World War veterans receiving treatment for disability not the result of service, 2,787 were veterans of wars prior to the World War, and 201 were employees of the Civilian Conservation Corps. Sixteen per cent of the patients then present in hospitals had tuberculosis, 60 per cent neuropsychiatric diseases, and 24 per cent general medical and surgical conditions. This is a marked change since June 1923, when 41 per cent of the veterans were under treatment for tuberculosis, 39 per cent for neuropsychiatric diseases and 20 per cent for general conditions.

Since March 3, 1919, there have been 1,277,624 admissions to hospitals, of which 136,626 were made during the last fiscal year. Since June 7, 1924, when hospitalization was first authorized for the veterans of all wars without regard to the origin of their disabilities, 531,715, or 62 per cent of all admissions, had been for the treatment of non-service-connected disabilities. About three fourths of the admissions in the last fiscal year were for nonservice disabilities. During this year 71,139, or 52.07 per cent of the total, were first admissions, while 62,112, or 45.46 per cent, were readmissions.

About 179,400 patients were under hospitalization during the year, of whom 145,937 were discharged after an average of 96.5 inpatient days; 86 per cent of these remained until the completion of the hospitalization episode. During the year, 7,375 patients died in hospitals and 60 per cent were among patients under treatment for general diseases, 28 per cent for pulmonary tuberculosis, and 12 per cent for neuropsychiatric diseases. Eleven per cent of the pulmonary tuberculosis cases resulted in death, 4 per cent of the general, and 2 per cent of the neuropsychiatric. This decrease was the direct result of the act of Congress, approved March 20, 1933, which denied the benefit of hospitalization to many veterans who had been eligible under prior laws. This law also resulted in a decrease of 8 per cent in the number of admissions to hospitals over the number admitted in the previous fiscal year.

The Veterans' Administration was operating, June 30, 1933, hospital facilities at seventy-one locations in forty-three states and the District of Columbia, providing a total of 40,213 beds, or an increase of 3,641 beds over those available at the end of the previous year, practically all of which increase was for the care of psychotic and general medical and surgical patients. Seven newly constructed hospitals were opened during the year; namely, at Tuscaloosa, Ala.; Albuquerque, N. M.; Canandaigua, N. Y.; Columbia, S. C.; Salt Lake City; Huntington, W. Va., and St. Petersburg, Fla. Additional hospital beds were acquired through new construction or alterations at a number of other locations. Three new facilities were completed this year but were not opened; namely, at Wichita, Kan. (162 beds); Cheyenne, Wyo. (108 beds), and Roseburg, Ore. (191 hospital and 350 barrack beds). During the year three facilities were closed; namely, at Philadelphia (416 beds); Kansas City, Mo. (200 beds), and Dwight, Ill. (225 beds). With the closing at Kansas City, all facilities controlled by the Veterans' Administration are government owned. The Congress of the United States has appropriated since February 1919 the sum of $119,952,000 for new hospitals, domiciliary and outpatient dispensary facilities, and in addition there has been expended since 1923 over $16,800,000 from regular fiscal funds for improvements and extensions to veterans' facilities. At the close of the fiscal year there were under construction the following major projects: (*a*) 275 new hospital beds at Augusta, Maine; (*b*) a 297-bed hospital at Batavia, N. Y.; (*c*) a 518-bed home at Biloxi, Miss.; (*d*) 188 additional hospital beds at Coatesville, Pa.; (*e*) a 300-bed hospital at Des Moines, Iowa; (*f*) a 258-bed hospital at Fayetteville, Ark.; (*g*) 199 additional hospital beds at Fort Lyon, Colorado; (*h*)

748 new hospital beds at Leavenworth, Kan.; (*i*) 56 additional hospital beds at Rutland Heights, Mass.; (*j*) a 334-bed hospital at San Francisco; (*k*) 104 new hospital beds at Tuscaloosa, Ala. The construction under way at Leavenworth, Kan., will result in a net increase of 383 beds, and at Tuscaloosa, Ala., 77 beds. The daily cost of operation per patient for hospitals used principally for the treatment of tuberculosis is $4.61 (a reduction of 22 cents over last year); for hospitals for the treatment of neuropsychiatric diseases, $2.12 (a decrease of 33 cents); for all general hospitals, $3.48, and for all types of hospitals, $2.99.

The field facilities of the Veterans' Administration made 1,350,452 physical examinations during the year for outpatient purposes, a decrease of 707,260 of the number made during the previous year. Of this number, 28,291 were dental examinations. About 94 per cent of the medical examinations and 81 per cent of the dental examinations were made by physicians on a salary basis. The medical and dental treatments rendered by physicians on a salary basis were 75.3 per cent and 71.3 per cent, respectively, of the total treatments. At the end of the fiscal year there were 5,739 beneficiaries under the supervision of follow-up nurses. General Hines states that the material decrease of the number of examinations made for outpatient purposes was due largely to the act of Congress approved March 20, 1933, and the regulations issued thereunder, which prescribed new eligibility requirements for entitlement to certain benefits.

Dental services rendered in Veterans' Administration clinics during the year, if computed on a fee basis, would have cost $1,700,910, whereas the actual cost of furnishing this relief was $869,708.52, thereby resulting, it is said, in a saving of almost 50 per cent. The number of beneficiaries that received dental treatment during the year was 57,018, an increase of 20,232 over the previous year, due largely to including for the first time dental work furnished by clinics at Veterans' Administration homes. At the close of the year there were 158 full time and 3 part time dental officers on duty with the Veterans' Administration.

Although 118 years has elapsed since the close of the War of 1812, there are yet seven persons receiving pensions on account of services rendered by soldiers in that war, and there were still 415 widows of Mexican War veterans on the pension roll. At the close of the year, pensions were being paid to 23,863 veterans of the Civil War, representing a reduction of 7,209 since the close of the previous year. There were also on the pension rolls 125,638 widows and minor or helpless children of veterans of the Civil War, a decrease of 14,286. The grand total disbursements for pensions on account of the Civil War to June 30, 1933, was $7,698,594,101.77. The estimated amount paid to pensioners of all wars and the regular establishment from the year 1790 to June 30, 1933, is $8,871,483,951.58. The total number of pensioners on the roll at the end of this year was 416,840, a decrease of 21,101 over the previous year; of the total, 174,121 were widows and dependents of veterans and 566 were army nurses.

The seventy-third Congress of the United States in an act approved March 20, 1933, repealed all laws granting compensation to veterans of the World War for disabilities incurred in service and in place thereof provided for the payment of pensions effective July 1, 1933. General Hines summarizes the eligibility requirements and the rates established for pensions. Compensation was being paid, June 30, 1933, to 336,710 veterans for disabilities directly or presumptively resulting from service in the World War, an increase of 8,052 over the previous year, and the disbursement for this purpose during the year was $184,824,665.79, a decrease of about four and three-fourth millions of dollars. The average monthly value of all compensation awards at the end of the year was $43.70, a decrease of 42 cents over the corresponding date of last year. The major disabilities for which veterans are receiving compensation are neuropsychiatric diseases (21 per cent), tuberculosis (19 per cent), and general medical and surgical conditions (60 per cent). There were 2,966 women veterans receiving compensation, June 30, 1933, an increase of 62 over a year ago; of these women, 2,424 were army nurses and 122 navy nurses. June 30, 1933, compensation was being paid to the beneficiaries of 98,628 veterans who died in service or as a result of disabilities or injuries incurred in service during the World War, an increase of 1,180 cases over the previous years. Death claims have been paid to date to the beneficiaries of 128,818 deceased veterans. The principal causes of death of veterans who died as a result of service and whose dependents now receive benefits was tuberculosis, 30 per cent; injuries, 28 per cent, and diseases of the respiratory system, 25 per cent (largely influenza contracted during the 1918 epidemic). Regular monthly payments were being made, June 30, 1933, to 6,007 emergency officers who incurred disabilities of 30 per cent or more in the World War, a decrease of 408 over the previous year, which decrease was due, it is said, to an act of Congress approved June 30, 1932. There were 616,069 government life converted insurance policies in force at the close of this fiscal year.

The Veterans' Administration, June 12, 1933, began a selection of veterans to compose the veterans' contingent for emergency conservation work. Later the authority for enrolling veterans in this work was extended, and 26,838 selected veterans were in work and conditioning camps, July 31, 1933. The hospital facilities controlled by the Veterans' Administration were made available for the treatment of employees of the Civilian Conservation Corps, and on June 30, 1933, there were 201 of these men under treatment in these facilities.

The number of employees on the rolls of the Veterans' Administration, June 30, 1933, was 35,467, whose annual aggregate gross salaries totaled about fifty-eight and a half million dollars, including allowances but excluding compensation paid per diem and per hour employees. This was a decrease of 1,351 employees at the close of the previous fiscal year. The personnel in the central office of the Veterans' Administration decreased from 5,372 to 5,052 during the year, and the personnel on duty at field stations decreased from 31,446 to 30,415, a reduction of 1,031 employees. The actual net disbursements of the Veterans' Administration for all purposes for the activities under its jurisdiction during the fiscal year totaled $868,688,479.42, of which amount $13,517,369.43 was for new hospitals and domiciliary facilities.

General Hines summarizes regulations that grew out of the act of Congress of March 20, 1933, tending toward the administration's broad economy program. On June 16, 1933, Congress further liberalized the act of March 20, 1933, and the regulations issued to that time. This act extended protection within defined limits in the several classes of pensions previously awarded to veterans and their dependents of the World War and the Spanish-American War and set up boards of review throughout the country for the final determination, subject to appeal, of veterans' claims, in which presumptive service connection had hitherto been granted under the World War veterans' act of 1924 as amended. Congress in this act appropriated $531,988,000 for the administration of veterans' relief (exclusive of the appropriation for the adjusted service certificate fund) for the fiscal year 1934, which was a reduction of some $338,000,000 in the 1934 appropriation previously sought for the same purpose.

Included in the report is a tabulated survey of all government hospitals, showing, among other things, their locations and the locations of the nearest government hospital, the capital investment in each hospital, the number and age of the patient buildings, the beds available, and the general nature of the medical work.

Veterans' Relief Regulations Modified

President Roosevelt announced, January 19, it is reported, certain modifications of the regulations providing for veterans' relief. The changes affect 228,000 veterans and add $21,092,000 to the cost of the Veterans' Administration, bringing the total for the present fiscal year to $510,000,000. The several amendments to the regulations affecting the veterans provide for:

1. Increase from $90 to $100 in pensions for veterans suffering total service connected disability, and proportionate increases for those suffering less than total service connected disability.

2. Liberalized provision for hospitalization of veterans in non-service-connected emergency cases in which patient cannot pay.

3. Granting of $15 monthly pensions to Spanish-American War veterans in service ninety days, discharged for disability incurred in less than ninety days, or who are now 50 per cent disabled, regardless of service connection or age.

4. Increase from $15 to $100 in funeral allowance for deceased war veterans.

5. Elimination of provision requiring veterans suffering non-service-connected disability, not due to their own misconduct, to prove minimum of ninety day service before granting of $30 monthly pension.

6. Restoration of former pension rates to widows of regular army officers and enlisted men who died of disabilities incurred in line of duty.

7. Modification of rule prohibiting payment of pension of federal employees receiving salaries more than $50 a month, and granting pension to single employees paid not over $1,000 a year, or married employees not over $2,500 a year.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 30, 1933.

The Relation of Brain and Mental Ability

Dr. H. L. Gordon, visiting physician to the Mathari Mental Hospital, Nairobi, Kenya Colony, determined the cranial capacity of 3,444 unselected natives, representing the average of the Kenya population. The average cubic capacity was 1,316 cc., against the European 1,481. He also found that from the ages 10 to 20 years the average yearly growth of the native brain was 8.5 cc., against the European 17.7. Further, after puberty the curve of growth of the European brain rises steeply but that of the native scarcely at all. The measurements and statistical data were submitted to Mr. Walter, statistician to the conference of East African governors. Dr. Gordon carried his observations into the laboratory with the expert help of Dr. F. W. Vint, pathologist to the Kenya government. He found that the brains of 100 normal males averaged 150 Gm. less than Europeans. Dr. Vint's results (to be published in the *Journal of Anatomy*) showed that the cortex of the native brain was 15 per cent less than of the European and that its cells were smaller, less well formed and less well arranged than those of the European. Further, although there was no reduction in the number of cells in any given area, the native cortex showed predominance of undifferentiated cells. Finally, Dr. Gordon found that, while dementia precox is unknown among natives living their own life, every native in which it occurred had received some European education. In view of the rapid introduction of European civilization into Africa, these observations are important. Dr. Gordon holds that "the hand of science, with all its power, has not yet been held out to enable the native to rise."

Dr. Cyril Burt, professor of psychology at University College, London, disagrees with the conclusion that efforts to educate the natives may induce insanity, because it is contrary to current theories and current practice. The notion that mental ability can be gaged by measuring the skull has been abandoned. The correlation between skull capacity and inborn intelligence is certainly positive but far too small to be of diagnostic value. The skull capacity varies far more closely with physical characteristics—height, weight, age, sex, race—than with mental characteristics. The greater part of the brain is concerned with physical and not intellectual activities. Dr. Vint's observations on the cells of the cortex are more suggestive, but he is far more cautious in drawing psychologic inferences than Dr. Gordon and says that "the functions of the human brain are still wrapped in mystery." It is commonplace among psychologists today that mental characteristics should be judged by mental symptoms, not by physical. Professor Burt quotes from Dr. Oliver, who has recently described in the *East African Medical Journal* tests performed in two large schools in Kenya, one native and the other European. He found that the average native intelligence was only about 85 per cent of the European; nevertheless, 14 per cent of the natives actually surpassed the European average. Moreover, the fathers of the European children were largely government official and professional men, which should give a somewhat high European standard.

Prof. Julian Huxley points out that brain weights of individuals or types are to be compared only in terms of relative brain size. Lapicque showed that for different types of mammals or for the sexes the brain varies as the body weight raised to the power 0.56. When men and women are so compared their "coefficient of brains" or relative brain size is identical, though woman's brain is distinctly the smaller. The average size of the natives measured by Dr. Gordon appears to have been much less than that of Europeans, which to some extent would account for smaller brains. Professor Huxley thinks that the abler natives are perfectly capable of profiting by the best education that can be given them. Prof. J. B. S. Haldane satirizes Dr. Gordon's conclusion. He points out that Martin found that the average capacity of the Eskimo brain is 1,563 cc. and thus exceeds the European. If the Kenya natives are to be protected from European education, Europe should also be protected against the disintegrating effects of Eskimo culture!

The Persecution of German Scientists

At a meeting of the council of the Association of University Teachers, held at the Imperial College of Science and Technology, Prof. Frank Smith of the University of Leeds said in his presidential address that freedom to teach, to learn and to investigate was the primary requirement of intellectual life. Recently, in Germany, race and political partisanship had been exalted above the ideal of universal learning. Germany could boast a great educational tradition, but now in an orgy of ferocious and narrow nationalism scholars, some of them among the most distinguished in the world, were dismissed because they did not satisfy standards of race, religion or political faith.

Dr. Erwin Schrödinger, professor of theoretical physics at the Friedrich Wilhelm University, Berlin, had to leave Germany, but had found hospitality at Magdalen College, Oxford, where he was elected to a supernumerary fellowship. The idea that an electron is in some way connected with a wave motion of definite frequency, depending on its speed, was brought forward in 1925 by Louis de Broglie. Schrödinger found out the "wave equation" for these waves. He has been awarded the Nobel prize in physics for furthering a new development of the atom theory. The latest estimate gives the number of refugees from Germany to other countries as 60,000, of whom 51,000 are Jews. Nearly all the medical refugees are Jews, but only about half of the scientific refugees. These figures show the political nature of the persecution, which is directed against all persons of pacifist or liberal views.

The Campaign Against Noise

As stated in previous letters, the evil of the great increase of noise in recent years has led to organized effort to reduce it. Two societies were formed—the Anti-Noise League and the Noise Abatement Association. They have been working in close alliance and have now decided to amalgamate. The Anti-Noise League, which came into existence scarcely three months ago, now has a membership of over 2,000, which includes Lord Horder and many other well known people. People in all walks of life gave ready support, and a donation has just been received from the Clothworkers' Company, one of the ancient City Livery companies.

Preventive Medicine in East Africa

The great work of building a bridge across the Zambesi in East Africa, which, with its approaches, measures 2½ miles, and adapting the railway line accordingly is now in progress. Elaborate precautions were taken to protect the health of the workers in this malarious district. Before starting, the railway authorities sought the advice of the Ross Institute of Tropical Hygiene with reference to the sites for stations on the extension of the railway to Domira, its terminus on Lake Nyasa. At the sea terminus the Portuguese government asked advice on the control of malaria in the port of Beira. When the construction camp, now like a small town, was being laid out, it was realized that unless special precautions were taken the climate and its fevers would take a heavy toll. Under the guidance of Mr. C. R. Harrison, an expert with much successful work to his credit in Malaya and the copper mines in

Rhodesia, a complete system of antimalarial drains was constructed, every precaution was taken to prevent mosquitoes breeding in the vicinity of the camp, and there has been only one case of malaria among the Europeans. Hospitals have been built. The health of the native workmen has been so good that only a small percentage of admissions to the hospital have been due to illness, the rest being largely accident cases.

Automobile Fatalities

Sir Henry Dickens, son of the great novelist, who was a retired judge and 84 years of age, was knocked down by a motorcycle while crossing the Chelsea embankment, sustaining fractures and other injuries. He died in a hospital. A curious fact is that when asked by a policeman for his address he gave an address where he had not lived for ten years. At the inquest the coroner said that he often found that an injured person after an accident gave an address where he had previously lived. This seems to be an example of loss of memory for recent events. The coroner also stated that he had had in his own district of the metropolis no fewer than thirteen deaths from automobile accidents in the last few days.

The Birth Rate Is Still Falling

The Registrar-General's Statistical Review for 1932, which has just been issued, shows that the birth rate for England and Wales was 15.3 per thousand, which was 0.5 below that for 1931, the lowest previously recorded, and therefore was a new low record. The death rate was 12 per thousand, 0.3 below the rate for 1931 but 0.6 above that for 1930, but the 1930 rate was the lowest ever recorded and was largely due to an exceptionally mild winter. The death rate of infants under 1 year was 65 per thousand births, as compared with 66 in 1931 and 60 in 1930. Traffic accidents due to mechanical vehicles were responsible for 5,671 deaths, against 4,452, 5,196, 5,792, 6,342 and 5,892 in the preceding five years. The death rate from cancer was 1,510 per million living, against 1,484 in 1931. If allowance is made for the higher age constitution of the population, the increase becomes much smaller. Tuberculosis again furnished a new low record, 837 per million. Puerperal sepsis was the cause of 1.55 deaths per thousand labors, and other "accidents of pregnancy and childbirth" gave a rate of 2.49. The deaths from influenza numbered 13,156, against 14,409 in 1931, 5,019 in 1930 and 29,074 in 1929.

Control of Medical Service and Child Marriage in India

In a debate in the house of commons on the appointment of a committee to consider the future government of India, the Duchess of Athol pointed out that, since the transference of certain public health matters to Indian management, grave deterioration had occurred. An ex-principal of the medical college at Lahore told a similar committee, at the last session, that professors were appointed who had no claim to such posts. The present professor of physiology was selected in spite of the principal's opinion in writing that he was unfit for the post. He had never acted as a demonstrator and had no qualifications to teach the subject. He informed the principal that all that he knew of physiology was what he had learned many years ago in his ordinary medical course and would have to start to read up on it. Another man was sent to officiate for twelve months as professor of midwifery and gynecology. The gynecological operations performed in the Lahore College hospitals are mainly abdominal. This man had no knowledge of the technic of abdominal surgery. He had never done an important abdominal operation. He had to leave most of the operations to his house surgeon and when he did operate the house surgeon had to supervise. Yet his appointment meant that he was the specialist for the province.

Another speaker, Miss Rathbone, a philanthropist, said that the Indian census report for 1931, which had lately reached England, showed that the disparity between females and males in India had steadily increased during the last thirty years. This was attributed in the report to the unsatisfactory conditions of life of young girls. Child marriage was the great evil. The government made three attempts to deal with the problem of early consummation but its efforts were nullified by Indian opposition. The Sarda act to prevent this scandal was so weakened to placate the opposition that it proved almost unworkable. In the six months following its passage 4,000,000 girls were hurried into matrimony. The number of wives under 14 in India had risen from 8,500,000 in the census of 1921 to 13,500,000 in the recent census. The number of child widows under 5 years of age had increased from 15,000 to 30,000. These shocking conditions resulted, according to the recent census, in 200,000 deaths in childbirth every year.

Code of Signals for Medical Aid at Sea

The merchant shipping act requires that every ship shall carry a medicine chest containing certain quantities of specified drugs and medical appliances, as well as an official publication, the "Ship Captain's Medical Guide." Every ship engaged in foreign trade carrying more than 100 men, whether as passengers or crew, must carry a doctor. This means that the vast majority of ships have none. Since the introduction of radio broadcasting, ship masters when confronted by serious illness have sought medical advice from other ships which may be within range. But it often happens that they cannot give the details necessary for the doctor to make a diagnosis, especially between ships of different nationality. The new "International Code of Signals," in force with the coming of the new year, contains a "case-stating system" designed to deal with the difficulty. There are about 1,000 signals to be made by five-letter groups. Instructions are given to assist the ship's master in framing his message and the doctor in replying. The master will consult sections 1 to 20 and, after he examines the patient, will frame his message in the sequence of the code. The master is advised not to give anything about which he is doubtful. Doctors are advised to confine their treatment as nearly as possible to the limits of the "medical guides." The code has been compiled by a committee consisting of representatives of England, France, Germany, Italy, Japan, Norway, Spain and Sweden.

PARIS

(From Our Regular Correspondent)

Dec. 13, 1933.

The Abuse of Hospital Privileges by the Wealthy Class

The surgeons are protesting against the abuses that have arisen in the admission of well-to-do patients to the public hospitals, whereby their private interests are greatly injured. In France, the public hospitals are reserved for the indigent. The expenses of the hospitals have increased enormously, during recent years, by reason of the higher wages paid the nursing personnel, and the application of the new social laws; more particularly, social insurance, which is a very costly system, and the eight-hour day law, which has made it necessary to double the nursing personnel. The municipal councils pay the cost of hospital treatment for indigent patients, and, furthermore, the budget of the city of Paris grants to the administration de l'assistance publique parisienne an annual appropriation exceeding 40,000,000 francs ($2,400,000), and yet the Assistance publique has a deficit. Many of the poorer communes are in arrears in paying the hospital charges for their respective patients. The well-to-do class is not as reluctant as formerly about being cared for in the public hospitals, since, for a small supplementary charge, a private room can be

secured. It pays the fixed charges to the hospital, which is quite content to cater to this prompt paying clientele. The sums received as surgeon fees are clear profit, since the surgeon is paid a fixed annual salary by the administration and he is prohibited from accepting fees from patients. The surgeons of Paris thus find their incomes diminished. They demand energetically that the public hospitals be reserved, as formerly, for the indigent; that is to say, for persons listed at the Bureau of Charities or who furnish proof that they pay only a minimal house rent. The scandalous spectacle of rich patients coming to the hospital in a luxurious car to consult a specialist for the sum of sixty cents, the fee established for the poor, or undergoing an operation for appendicitis or fibroma at the hospital, free of charge, by the same surgeon that they consulted at home, must cease.

Radium Treatment of Inoperable Gastric Cancers

Professor Gosset, in collaboration with Messrs. Monod and Regaud, reported to the Academy the results of using radium *à distance* in thirty-one cases of inoperable gastric cancer. The results were not brilliant. The chief interest of the report lies in the fact that the high reputation of Mr. Gosset justifies the conclusion that others are not likely to succeed better in this field. Mr. Regaud had supplied a relatively large quantity of radium (4 Gm.), which was distributed over a rectangular plate with an area of from 125 to 160 square centimeters, and applied at a distance of 10 cm. from the skin. The rays penetrated through multiple cutaneous surfaces: epigastric, dorsal and laterotransversal. The sittings for irradiation, with a duration of two hours each, were distributed according to series over a total period decided on tentatively in advance but variable in keeping with the tolerance of the patient. In seventeen cases (54 per cent) no improvement was secured. In seven cases the treatment gave some relief but without prolonging life. In seven cases (22 per cent) there was considerable improvement and life was prolonged varying periods of time. Two of these patients are still living; one appears to be cured, after a space of six and a half years. The other patient has survived four years and nine months. Two factors influenced unfavorably the results: (1) the bad general condition of the patients, who could not endure the dose necessary to bring about a notable retrogression of the cancer; (2) the resistance to radium displayed by the cancerous tissue, the resistance varying greatly in different cancers; it is as yet impossible to determine in advance what the resistance will be, on the basis of the histologic type of the tumor, as there is a lack of documentation in such cases. For the histologic examination to have full value, the tissues must be taken from the tumor itself and not from the perigastric glands, which are often enlarged although not invaded by the cancer. Since the reaction from removal of a fragment of tumor may be dangerous, the most interesting cases to study are the recurrences after gastrectomy, when the portion removed by operation has been carefully examined. Surgical exploration will be supplemented by gastro-enterostomy if need be, and by fixation of the stomach to the anterior wall of the abdomen to permit bench-marking of the tumor with reference to a future incision. If a cancer is operable by gastrectomy or pylorectomy, exeresis is preferable to radium therapy, the latter method being reserved for cancers that are actually inextirpable.

Strychnine in the Treatment of Barbital Poisoning

The Society of the Physicians of the Hospitals of Paris devoted recently a long discussion to poisonings due to barbital compounds, which have become exceedingly numerous. Several cases occur every week in Paris, where these products may be secured in pharmacies (in spite of regulations to the contrary) without a prescription. The antagonism of strychnine and barbital compounds is well known. Professor Ide has gone so far as to say that death should no longer result from barbital or phenobarbital if strychnine is properly employed to combat it. Etienne Bernard and Leroux Robert administered without success 0.38 Gm. of strychnine, over a period of thirty hours, to a patient poisoned by a heavy dose of phenobarbital. D'Oebnitz, Balestre, Brugière and Raibaudi (of Nice) administered 0.44 Gm. of strychnine, within fifty-seven hours, to a man, aged 60, who had ingested 10 Gm. of barbital and who succumbed, whereas a woman, aged 47, who had taken 15 Gm., recovered, following a dose of 0.06 Gm. of strychnine given within twenty hours. Louis Ramond and Jean Delay reported a case in which a person poisoned by barbital died in spite of the enormous amount of strychnine (0.62 Gm.) administered within three days. Flandin and Jean Bernard attended a peculiar case. A woman having ingested 15 Gm. of phenobarbital was brought to the hospital in coma. She was given intravenously 0.20 Gm. of strychnine during the first three hours, and the medication was continued up to 0.53 Gm. in thirteen hours, and 1.30 Gm. in sixty-seven hours, until an alarming convulsive crisis appeared, while the coma continued. She succumbed, the sixth day, in coma. It was apparent from this discussion that barbital poisonings present variable degrees of gravity. Prolonged hyperthermia is always a bad prognosis. In one case the temperature continued to rise up to 42 C. (107.6 F.), which was reached two hours after death. Prompt treatment and the immediate use of large doses are very important. But the dose is difficult to determine a priori; then, too, it is not always known, when a patient arrives in a state of coma, just what amount of barbital has been ingested. Paraf, Delay and Macrez, in the case of a woman who had ingested 10 Gm. of barbital and 0.10 Gm. of phenobarbital and had lapsed into coma, reported that a simple dose of 0.01 Gm. of strychnine precipitated convulsions. It appears, therefore, that there is no mathematical relation between the amount of barbital ingested and the dose of strychnine capable of neutralizing it. There is a wide range of individual receptivity, which upsets attempts to make a prognosis. The toxic dose of barbital is 3 Gm. for some persons, and in other cases reaches 10 Gm.

Vaccination Against Tuberculosis in the Navy

The minister of the marine has created vaccination services for the application of the B C G vaccine in all the ports, and in all the cantonments of the navy, in collaboration with the local authorities. This measure will be confined, for the present, to children of families connected with the naval forces, and to certain classes of personnel more particularly exposed to contagion.

Discussion of Roentgenologist's Cancer

Mr. Béclère addressed recently the Academy of Medicine on roentgenologist's cancer. Thirty years ago he was the first to equip his department, in the Hôpital St. Antoine, with radiologic apparatus; thus far, he has contracted only a chronic restricted radiodermatitis, without cancerization. Mr. Béclère has abandoned the conception of the irritative origin of cancer, as upheld by Ménetrier. He does not regard cancer as the almost inevitable result of inflammatory and hypertrophic lesions of increasing intensity. Béclère thinks that cancer is an accident associated with various nonspecific lesions; a complication that implies the development of a new factor. The roentgenologists who become affected with cancer are much in the minority, as compared with those who have manifest changes of the skin of the hands. There is no parallelism between the degree of cutaneous lesions and the presence or absence of cancer. Many roentgenologists affected with cancer have never had the slightest sign of acute radiodermatitis and presented only insidious skin changes, very slowly progressive. The term

"chronic dermatitis" does not appear to fit their condition, for in most cases they present none of the clinical characters of inflammation. Their lesions correspond rather to those that develop following nerve injuries. They have the character of a trophic disorder and reveal rather the destructive action of roentgen rays than the excitatory and irritative action. The glabrous appearance and the extreme dryness of the thin skin furnish evidence of the atrophy of the hair follicles, the sebaceous glands and the sweat glands. These observations appear to support the hypothesis that cancer, like tuberculosis, is a disease of external origin, in spite of the fact that the microscope does not reveal the causative agent.

Professor Regaud, director of the Curie Institute, supported the conception of Mr. Béclère with the weight of his authority. He does not, however, assume distinctly the action of an external specific agent in the genesis of cancer. He expressed the views that the roentgen rays destroy the cells but do not create inflammatory states. The cancerous lesion of the skin is an accident—an explosion, so to speak, of abnormal cellular activity, which develops at one or more points in a vast surface, sometimes following a chronic inflammation but at other times in the absence of all inflammation. Regaud is opposed to the theory of a "general cancer disease." He does not believe that hereditary influences or blood changes are the chief causative factors. Evidence of this is the complete recovery that is effected by a local operation performed in time. Cancer comprises as many distinct diseases as there are tissues and organs. These are essentially local diseases, although the onset may be facilitated by general causes.

PRAGUE

(From Our Regular Correspondent)

Dec. 27, 1933.

A Smaller Public Health Budget

The Czechoslovakian parliament has just approved of the budget for 1934. The whole budget was made up under the pressure of the strictest economy in public finances. A reduction of expenditures for public health was to be anticipated. From the highest figure of 157,000,000 crowns for the ministry of health in 1931 the appropriation was cut to 140,000,000 for 1934. While the total reduction of state expenses in comparing the year 1931 with 1934 is more than 20 per cent, public health came out with a reduction of slightly more than 10 per cent. In comparison with other branches of public administration, public health was given some preference. Only general administration, schools and justice have had a smaller reduction in the budget. All other public services, including national defense, suffered much deeper reductions of their appropriations. No material reductions in the public health personnel have been effected through the budget. As the health officers are civil service employees, their salaries have been reduced on the same scale as the remuneration of other public officials. The finance administration insists only on a reduction of 10 per cent in the number of public health posts throughout the country in such a way that vacancies from death or retirement cannot be filled up to that limit. Private public health work, which is subsidized in Czechoslovakia from public funds, has suffered mostly from the uncertainty of future support rather than from actual lack of funds. While the state subsidies have been reduced, substantial aid to institutions supported by private associations has come from the central insurance fund, which administers the sickness insurance for the whole working population of the country. This fund stepped in at this moment to preserve the voluntary public health machinery from actual collapse. On the whole, the public health machinery of Czechoslovakia, which has never been built up to abnormal proportions, has stood up well under the attacks of hard times, and consequently has proved its solid foundation.

Conference on Child Welfare

The fourth Conference on Child Welfare was held in Brno, October 28-31. These conferences were founded by Prof. E. Babák of Brno in 1922 to promote research in child welfare by teachers, psychologists, anthropologists and physicians. The congress was a great success. The number of participants was more than 1,200. Foreign delegates came from Russia, Poland and Yugoslavia. The first section dealt with the preschool child, the second section with adolescence. The resolutions adopted dealt chiefly with public health, stressing the importance of school medical inspection, dental care, nutrition and defects of speech. A warning was formulated for teachers especially with regard to athletics, in which overstrain in children may be just as detrimental to health as too little physical culture. A striking feature of the congress was the perfect cooperation between teachers and physicians. A permanent committee will attempt to organize the next congress in two years on an even broader basis, inviting in larger numbers participants from other Slavic nations.

Professor Petřivalsky's Birthday

The chief of the surgical clinic of the Brno Medical Faculty, Dr. Julius Petřivalsky, has celebrated his sixtieth birthday. He is one of the few surviving pupils of the Prague school of surgeons educated by Professor Maydl. Born in Moravia, he was given the task of building up the surgical clinic when the new faculty of medicine was founded in the capital of Moravia in 1919. After graduating in Prague in 1898, he took up surgery and later studied in Germany, Switzerland, France and Belgium. He began lecturing on surgery at the Prague Faculty of Medicine in 1909 and became the chief of an independent surgical institute when the new university was founded in Brno. He formed a surgical school of his own, and his pupils occupy important university posts and leading positions in provincial hospitals. His research was devoted chiefly to cancer and to the improvement of surgical technic. Over fifty papers of his have been published; also three manuals of surgery. He is a member of many Czechoslovakian and international scientific bodies.

Industrial Diseases and the Compensation Law

A section for the study of industrial hygiene was organized recently within the Association of Czech Physicians. The impetus came from the need in medical practice resulting from the law on compensation for industrial diseases. When the law became effective in 1933, a list of twenty-five occupational diseases was made up that come under the workmen's compensation act. The sickness insurance bodies notify cases of these diseases when they last longer than twenty-six weeks, and if the claimant is disabled a pension is given in proportion to his reduced working capacity. Since this measure affects the financial interest of sickness insurance bodies, they search among their patients for cases that can be proposed for a pension. Up to the present, the occupational side of the etiology of diseases has been somewhat neglected. The new law makes necessary the definition of clinical symptoms that make up a compensable case of industrial disease. The first session, which was recently held, heard papers on lead poisoning, the organization of first aid in large factories, and the relation of silicosis to tuberculosis. The group represents not only the Prague Faculty of Medicine but also leading physicians of provincial hospitals and medical departments of important industrial corporations.

"Patent Medicines" Unknown in Czechoslovakia

The economical control of pharmaceutic products is becoming a serious problem in Czechoslovakia. After the war, an increased demand for medicines was met largely by importa-

tion from foreign countries, but of late the local chemical industry has begun the production of all kinds of medicines. "Patent medicines" in the American meaning of the word are unknown in Czechoslovakia, because the sale of only such medical preparations is allowed as those of which the contents have been made public. The so-called medical specialties, which are related to "patent medicines," are only a combination of known ingredients, which can be protected from competition by special authorization from public authorities. As the bureaucratic procedure to obtain this authorization is long drawn out, the firms place their preparations on the market when they apply for authorization. So a number of medical specialties are on sale without authorization of the authorities. The chief hindrance to the proper regulation of this matter is the lack of endowment of public laboratories that are entrusted with the control and analysis of such preparations. A private corporation was recently formed by well known university teachers, including pharmacologists, clinicians and biologists, who offer their services for the control of medical specialties. This nonprofit institution will give its approval of medical specialties only in case the claims of the preparation are justified by scientific facts. Such preparations will be included in the list of "medicamina eminentissima," which the corporation will publish periodically. The cost connected with the examination of these preparations will be borne by the respective producers. The names behind the new institution guarantee impartial and authoritative work.

New Centers for the Study of Cancer

In 1932 the number of deaths due to cancer exceeded the number of deaths due to tuberculosis. A private association to combat cancer, which has existed in Prague for twenty years, succeeded recently in collecting funds for the erection of a research institute. This institution is only partly subsidized by public authorities. Another cancer center is being organized in Brno, where an analogous institution is approaching the completion of its own building. An association for the study of cancer has been organized also in Brno.

BERLIN

(From Our Regular Correspondent)

Dec. 11, 1933.

A Survey of Left-Handed Students

Professor Bethe, physiologist, of Frankfort, has completed some research on the question as to whether there exists a superiority of one hemisphere of the brain, and as to whether the left hemisphere is superior to the right. He was led to make this study by the observation that persons whose right arm was amputated during the World War adapted themselves rapidly to the use of the left arm. Experimenting on himself, he became accustomed to use his left hand, but only after a lapse of several years. In contrast, he saw that, when a person is suddenly deprived of an arm, the ability to use the other arm develops rapidly. The alleged predominance of one hemisphere of the brain over the other hemisphere cannot be harmonized with this fact. Left-handedness is more common than is generally supposed. Among 266,000 soldiers, 10,300 were left-handed, or 3.9 per cent. The proportion of left-handed and of right-handed young children is identical, ranging around 17 per cent; the remainder are ambidextrous. With increasing age, the proportion shifts toward the side of right-handedness. Another series of statistics lists 25 per cent of a group of children as left-handed. Bethe instituted experiments on a large scale on students and reached the conclusion that there is absolutely no predominance of the right side in the use of the limbs. His investigations showed the proportion of genuine right-handed and left-handed subjects to be as 20 to 25 per cent. The next thing to be decided is whether the domination of one side is of a primary or an acquired character. A fact frequently observed is that in aphasic plegia of a left-handed child in whom the speech center would be assumed to be in the right hemisphere, the paralysis does not affect the left side. Experiments have established that in the frog and in the shark, after removal of a labyrinth, a lateral diversion of the leg or fin, respectively, develops, which, after extirpation of the second labyrinth, continues unchanged as a pronounced acquired modification of behavior. Similar observations have been made on the dog, which, after removal of one cerebellar hemisphere, develops the staggers and retains the disorder following removal of the other hemisphere. Therefore it may be concluded that central manifestations occur as a result of acquired functional procedure. Other experiments point to the same conclusion. The view that left-handed persons are supposed to suffer from physical deformities, mental backwardness, epilepsy, criminal tendencies, strabismus, deafmutism, stuttering, and the like, is discredited by the fact that many distinguished men (for example, Leonardo da Vinci and the surgeon Ludwig Rehn) were left-handed. Bethe addressed a questionnaire to four universities, among the members of the faculty of which 20 per cent were left-handed. This is a far greater percentage than is commonly supposed to exist. Furthermore, the left-handed persons, as a survey showed, were better in the examinations, on the average, than were the other cases. These observations serve to show that there is no evidence for an unequivocal superiority of one hemisphere of the brain over the other.

Birth Rates and Illegitimate Births

In 1932, Germany, Italy and Poland had a marked decline in the birth rate. In the German reich the number of living births receded by 53,600. In Italy the number of living births was 34,150 fewer than in 1931, so that in 1932 the birth rate for Italy was only 23.8 per thousand, as compared with 24.9 births the previous year and 26.7 births in 1930. In Poland in 1931, 50,000 fewer births were recorded, and in 1932 there was a further decline of nearly 34,000, so that the birth rate of Poland dropped, over the two-year period, from 32.3 (1930) to 28.7 per thousand of population. In the remaining countries of western, central and northern Europe the decline in the birth rate ranged from 0.2 to 0.7 per thousand. France had a decline in its birth rate of only 0.2 per thousand. In Sweden and Hungary the birth rate was only 0.2 and 0.3 per thousand of population, respectively, lower than in 1931, whereas Great Britain and Czechoslovakia showed a decline of 0.5 per thousand and Austria a drop of 0.7 per thousand. Unchanged birth rates were recorded in the Netherlands and in Switzerland. The countries of lowest birth rates at present are the German reich, Austria, Sweden and Great Britain, with birth rates ranging from 14.5 to 15.8 per thousand. France (with a birth rate of 17.2), Belgium (18.1) and Switzerland (16.7) have in recent years passed out of the group of nations with the lowest birth rates. The birth rates in Norway (16.7), Denmark (18.0) and Finland (19.5), together with Lithuania and Estonia, range around that of France and in some cases exceed it. In countries bordering on this area, limitation of births is making further progress, particularly in Czechoslovakia, Hungary and Italy, which countries report, in contrast with former high rates, birth rates of from 21 to 24 per thousand, which are lower than the birth rate of the German reich in 1923 (26.9). The birth rates in the countries of the Iberian peninsula (28.3 and 30.7) and in eastern and southeastern Europe are still high. There appears to be evidence, however, that the demographic pressure of the Slavic races of the East will in the near future lose considerable of its force. It may be added that in 1932 the population of Japan increased by 1,007,868 (in 1931, by 861,534).

The percentage of illegitimate births in Germany (12.1) is exceeded by that of only one European country (Sweden, with a percentage of 16.1). The corresponding percentage in Greece is 1.4; Bulgaria, 4.0; Great Britain, 4.6; Italy, 4.9; Norway, 7.1; France, 8.4, and Denmark and Czechoslovakia, 10.7.

Requirements to Practice in Health Insurance Societies

The regulations of the new government concerning the admission of non-Aryan physicians to practice in the krankenkassen have undergone several changes. It will be recalled that of physicians of Jewish extraction only those have been admitted of late who were in practice before the outbreak of the war, together with those who fought at the front in the German army. Under date of November 20, the federal minister of labor decreed that non-Aryan women physicians whose husbands died in the World War and whose admission was prevented solely on account of their non-Aryan descent shall be readmitted to panel practice. It has been further decreed that, in cities with more than 100,000 inhabitants, non-Aryan physicians and Aryan physicians and women physicians who have a non-Aryan spouse shall not be admitted until further notice. In these cities, non-Aryan physicians who, within the meaning of the provisions, are to be regarded as front line combatants cannot be admitted since the promulgation of the decree of Nov. 20, 1933. The purpose of this provision is to relieve the overbalanced conditions that exist, primarily in the metropolitan cities, between the number of non-Aryan and Aryan physicians. Dr. Wagner, federal leader of the physicians, asked recently for cooperation in the settlement of the difficult Berlin problems, and particularly for the abolition of the unendurable condition in the federal capital today, where there are still more than 60 per cent of the physicians engaged in panel practice who are non-Aryans.

An Investigation of Honorary Titles

In the past fourteen years, an unusually large number of honorary doctor titles have been granted by German universities. The ministers of public instruction in Prussia, Bavaria and Baden have decided to institute an inquiry, for it has been said that honorary titles have been conferred frequently for political reasons rather than for scientific attainments. It was further decreed that a supplementary order be appended to the regulations for the conferring of titles, which shall provide for the cancelation of the doctor title under given conditions. This order is aimed at persons whose activities in foreign countries are detrimental to Germany's welfare and makes it possible to deprive such persons of their German citizenship.

The Medical Press of Germany

It was previously mentioned (THE JOURNAL, Sept. 2, 1933, p. 792) that an endeavor was to be made by the government to bring about greater uniformity in the medical press of the provinces. Dr. Wagner, the federally appointed leader of the German medical profession, has now ordered that from Jan. 1, 1934, in addition to the official organ of the federally controlled leagues of German physicians, the *Deutsches Aerzteblatt*, and the journal of the national-socialist medical league, *Ziel und Weg*, only thirteen provincial journals will be published, in place of the previous thirty-two. All these journals will bear the title "Aerzteblatt," with a statement as to what section of the country they are designed to serve; for example, one will serve all of Bavaria, and another will serve Württemberg and Baden in common. The contracts will be made with the publishing houses by the federations of the panel physicians who serve the krankenkassen, all contracts for the whole reich to be on the same financial basis, so that underbidding or overcharging on the part of the various publishing houses will be impossible.

MOSCOW

(From Our Regular Correspondent)

Nov. 19, 1933.

Anniversary of the Institute of Experimental Medicine

The All-Union Institute of Experimental Medicine was established, Oct. 15, 1932, by a special decree of the council of the People's Commissars of the Soviet Union. The institute has already developed a large scientific and practical program. In the clinic of the institute, I. P. Pavlov has studied the function of the nervous system of sane people by the method of conditional reflexes. Prof. A. G. Gourvitch conducted a study on the early diagnosis and treatment of cancer, which he reported at the International Congress of Cancer in Madrid. Prof. P. F. Zdrodovsky studied experimental meningitis on rabbits; also the development of arteriosclerosis, its prophylaxis and treatment.

The institute has organized a museum. In order to study the history of the biologic sciences, a commission of professors has been organized. New buildings will be erected for pediatric and mental clinics.

Physicians Visit Poland

A delegation of Soviet physicians was present at the Polish Congress of Physicians at Posen, September 12-15. The members of the delegation were Profs. A. S. Abrikosov, B. I. Lavrentiev and I. A. Mendelejeva and Dozent A. A. Bagdasarov. After the congress was closed the delegation visited Warsaw. In honor of the delegation, the Polish minister of labor gave a banquet.

This trip was the first of its kind since the October revolution.

Professors Honored

At a November meeting, the Central Executive Committee of the Russian Soviet Republic awarded the title "Honorable Science Workers" to Profs. M. A. Averbach and A. A. Kisel of the Second Moscow Medical Institute and to Prof. V. P. Osipov, director of the institute for the study of the brain. Professor Averbach is a prominent ophthalmologist. He founded a school of ophthalmology, organized a large hospital for eye diseases, and is the permanent president of the Moscow Ophthalmologic Society. Professor Averbach's scientific work is known throughout the world. Professor Alexander A. Kisel organized the children's clinic of the Second Moscow Medical Institute, where he worked about twenty years. He has written many scientific works and is the permanent president of the All-Union and Moscow district societies of pediatricians. Prof. Victor P. Osipov is well known in the fields of psychiatry. Since 1929, he has been the director of the State Institute for the Study of the Brain at Leningrad.

Marriages

WILLIAM WARRINER WOODRUFF, Saranac Lake, N. Y., to Miss Gertrude Stratbucker of Milwaukee at Detroit, Oct. 31, 1933.

ARTHUR ALLEN CANTWELL, Shawano, Wis., to Miss Alice Davis of Bozeman, Mont., in Wilmette, Ill., Dec. 23, 1933.

JOHN HENRY BLEKKING to Miss Dina Theodora Arentsen, both of Oostburg, Wis., Nov. 14, 1933.

PHILIP R. MCGRATH to Miss Margaret Mary Watson, both of Peoria, Ill., Oct. 19, 1933.

FRANK T. BOWER, Hattiesburg, Miss., to Miss Hazel Draughn, Nov. 23, 1933.

SAMUEL FOX, Lawrence, Mass., to Miss Esther Goose of Chelsea, recently.

EDWARD JACOBS to Miss Anne Seeman, both of New York, Dec. 23, 1933.

Deaths

William West Grant, Denver; Long Island College Hospital, Brooklyn, 1868; Trustee of the American Medical Association, 1901-1916; member and past president of the Colorado State Medical Society, Western Surgical Association and the Denver City and County Medical Society; chairman of the state committee on medical defense; fellow and one of the founders of the American College of Surgeons; served during the Civil and World wars; at one time lecturer on clinical and surgical gynecology, University of Colorado School of Medicine; surgeon to St. Luke's Hospital; aged 87; died, January 8.

Charles Franklin Eikenbary ✦ Seattle; Rush Medical College, Chicago, 1903; in 1926 Member of the House of Delegates of the American Medical Association; past president and secretary of the Spokane County Medical Society; member of the American Orthopedic Association and fellow of the American College of Surgeons; served during the World War; chief of staff of Children's Orthopedic Hospital and on the staff of the Swedish Hospital; formerly orthopedic surgeon to St. Luke's, Sacred Heart and the Deaconess hospitals, Spokane; aged 56; died, Dec. 31, 1933, of pneumonia.

Delbert Linscott Jackson ✦ Boston; Harvard University Medical School, Boston, 1908; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons and fellow of the American College of Surgeons; formerly assistant in obstetrics at his alma mater; on the staffs of the Boston Lying-in Hospital, Massachusetts Women's and New England Baptist hospitals, Chelsea (Mass.) Memorial Hospital, Choate Memorial Hospital, Woburn, Jordan Hospital, Plymouth and the Framingham Union Hospital, Framingham; aged 52; died, January 1, of heart disease.

Dennis Edward Sullivan ✦ Concord, N. H.; Bellevue Hospital Medical College, New York, 1885; Member of the House of Delegates of the American Medical Association, 1914-1915, 1920-1922, 1924-1928, 1930-1933; since 1906 secretary of the New Hampshire Medical Society; member of the state board of health since 1913; member of the board of education, 1908-1917; served during the World War; on the staffs of the New Hampshire Memorial Hospital for Women and Children and the Margaret Pillsbury General Hospital; aged 70; died suddenly, January 19.

Herbert Vergil Scarborough, Lyons, Kan.; College of Physicians and Surgeons, Keokuk, Iowa, 1902; member of the Kansas Medical Society and the Indiana State Medical Association; director of the Henrietta Brown Memorial Foundation; formerly superintendent of the State Sanatorium for Tuberculosis, Oakdale, Iowa, and the Sunnyside Sanatorium at Oaklandon, Ind.; aged 57; died, January 1, at Norton, of heart disease.

Irving Heward Cameron, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1874; emeritus professor of surgery and clinical surgery at his alma mater; served with the Canadian Army during the World War; fellow of the American College of Surgeons; surgeon to St. John's Hospital and consulting surgeon to the Toronto General Hospital and the Hospital for Sick Children; aged 78; died, Dec. 15, 1933.

Edmund Michael Baehr, Cincinnati; Medical College of Ohio, Cincinnati, 1901; associate professor of physiology, University of Cincinnati College of Medicine; member of the American Psychiatric Association; served during the World War; formerly member of the state bureau of juvenile research and the state welfare board; aged 55; was found dead, January 2, of heart disease.

Charles Bartles Smith ✦ Washington, N. J.; College of Physicians and Surgeons, Baltimore, 1891; formerly mayor of Washington and member of the board of education; past president of the Warren County Medical Society; aged 66; died, Dec. 19, 1933, of chronic nephritis, myocarditis, chronic cholecystitis, cerebral embolism and bronchopneumonia.

Benjamin Franklin Bond, Savannah, Ga.; Atlanta College of Physicians and Surgeons, 1900; acting assistant surgeon, U. S. Public Health Service; served during the World War; for many years on the staff of the U. S. Marine Hospital; aged 56; died suddenly, Dec. 9, 1933, of angina pectoris, arteriosclerosis and diabetes mellitus.

William Ben Boyce, Escanaba, Mich.; Medical Faculty of Trinity University, Toronto, 1902; member of the Michigan State Medical Society and the American Academy of Ophthalmology and Otolaryngology; past president of the Delta County Medical Society; on the staff of St. Francis Hospital; aged 59; died, Dec. 31, 1933, of cerebral hemorrhage.

Leon Ashley Peek ✦ West Palm Beach, Fla.; College of Physicians and Surgeons, Baltimore, 1897; fellow of the American College of Surgeons; past president of the Palm Beach County Medical Society; served during the World War; on the staff of the Good Samaritan Hospital; aged 58; died, January 5, of cardiorenal disease.

Louis Henry Braafladt, Sacramento, Calif.; Rush Medical College, Chicago, 1916; member of the California Medical Association and the American Association of Pathologists and Bacteriologists; formerly a medical missionary; aged 48; died, Nov. 10, 1933, in the Sutter Hospital, of septicemia, following furuncle of the nose.

Frank Chambliss Johnson ✦ New Brunswick, N. J.; Columbia University College of Physicians and Surgeons, New York, 1920; fellow of the American College of Physicians; on the staff of the Middlesex General Hospital; aged 39; was found dead, January 1, as the result of a fall from a precipice.

William Stockton Blue, Ottawa, Ill.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; veteran of the Spanish-American War; aged 55; died, Dec. 24, 1933, in the Edward Hines, Jr., Hospital, Hines, Ill., of chronic myocarditis and coronary occlusion.

George Ray Hare ✦ New York; Bellevue Hospital Medical College, New York, 1898; fellow of the American College of Surgeons; surgeon to the Manhattan Eye, Ear and Throat Hospital, New York, and the Nassau Hospital, Mineola, N. Y.; aged 68; died, Dec. 24, 1933, of pneumonia.

Charles Penny McCabe ✦ Braintree, Mass.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1919; aged 39; died, Dec. 15, 1933, in the Deaconess Hospital, Boston, of carcinoma of the stomach with metastases to the liver, peritoneum and left clavicle.

William Thomas Dawe ✦ Gonzales, Texas; University of Texas School of Medicine, Galveston, 1905; secretary of the Gonzales County Medical Society; served during the World War; city and county health officer; aged 59; died, Nov. 27, 1933, of sarcoma of the liver.

Herbert Battles Tanner, Eastland, Texas; Indiana Medical College, Indianapolis, 1878; member of the State Medical Association of Texas; formerly mayor and member of the school board of Kaukauna, Wis.; aged 74; died, Dec. 4, 1933, of tuberculous pleurisy.

Albert Levesque, St. Vincent de Paul, Que., Canada; School of Medicine and Surgery of Montreal, 1916; served during the World War; medical officer of St. Vincent de Paul penitentiary; aged 41; died, Oct. 27, 1933, of edema of the lungs.

John Hersey Fairfield, Great Falls, Mont.; University of Pennsylvania School of Medicine, Philadelphia, 1880; county coroner; formerly mayor and secretary of the county and city board of health; aged 77; died, Dec. 5, 1933, of heart disease.

Charles Francis Chapman ✦ Mount Kisco, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1890; on the staff of the Northern Westchester Hospital; aged 65; died, Dec. 26, 1933, of heart disease.

Daniel Benton Cain ✦ Evansville, Ind.; Kentucky School of Medicine, Louisville, 1893; formerly county health officer; on the staffs of St. Mary's and the Protestant Deaconess hospitals; aged 70; died, Dec. 24, 1933, of heart disease.

Sydney Sheppard Kellam ✦ Belle Haven, Va.; University of Virginia Department of Medicine, Charlottesville, 1898; past president of the Accomac County Medical Society; aged 59; died suddenly, Dec. 12, 1933, of angina pectoris.

Thomas David Gunter ✦ West Palm Beach, Fla.; University of Georgia Medical Department, Augusta, 1906; on the staff of the Good Samaritan Hospital; aged 60; was found dead, Dec. 25, 1933, of a self inflicted bullet wound.

Samuel Reed Eaton, Battle Creek, Mich.; University of Michigan Medical School, Ann Arbor, 1900; member of the Michigan State Medical Society; aged 70; died, Dec. 14, 1933, of chronic bilateral pyelonephritis and uremia.

Jule B. Frankenheimer ✦ San Francisco; Cooper Medical College, San Francisco, 1898; formerly instructor and lecturer in medicine at his alma mater; aged 60; died, Dec. 14, 1933, of angina pectoris, nephritis and myocarditis.

Thomas Shelby Chapman, McAlester, Okla.; Louisville Medical College, 1896; member of the Oklahoma State Medical Association; formerly mayor of McAlester; aged 64; died, Dec. 11, 1933, of chronic nephritis.

Charles Werden Holbrook, East Haven, Conn.; Yale University School of Medicine, New Haven, 1896; member of the Connecticut State Medical Society; formerly a minister; aged 77; died, Dec. 18, 1933, of pneumonia.

Gordon William Schneider, New York; Baltimore Medical College, 1913; member of the Medical Society of the State of New York; aged 45; died, Dec. 13, 1933, in the Sydenham Hospital, of uremia and chronic nephritis.

Henry Allan Beck, Uhrichsville, Ohio; Jefferson Medical College of Philadelphia, 1912; served during the World War; aged 43; died, Dec. 5, 1933, in the U. S. Veterans' Hospital, Aspinwall, Pa., of pulmonary tuberculosis.

Roy Dudley Moore, San Francisco; Barnes Medical College, St. Louis, 1899; member of the board of review of the Veterans' Administration; aged 56; died, Nov. 24, 1933, at Los Angeles, of pulmonary tuberculosis.

Clifford Earle Steckbauer ✪ Chicago; University of Illinois College of Medicine, Chicago, 1927; on the staff of the Illinois Eye and Ear Infirmary; aged 35; died, Dec. 28, 1933, of a self inflicted bullet wound.

Stanhope M. Scott, Sr., Terra Alta, W. Va.; University of Virginia Department of Medicine, Charlottesville, 1871; aged 83; died, Sept. 4, 1933, in Fairmont, of fracture of the left femur received in a fall.

Fred A. Collins, Vega, Texas; Arkansas Industrial University Medical Department, Little Rock, 1893; aged 67; died, Dec. 1, 1933, in a hospital at Amarillo, of diabetes mellitus and myocarditis.

George Lucas Harman, Savannah, Ga.; Baltimore University School of Medicine, 1897; member of the Medical Association of Georgia; aged 62; died, Dec. 2, 1933, of myocarditis.

Joseph Roosevelt Breitbart, Cleveland; Cornell University Medical College, New York, 1924; on the staff of the Mount Sinai Hospital; aged 33; died, Dec. 18, 1933, in Bermuda.

Addison Orr Boals, Hickory Valley, Tenn.; Vanderbilt University School of Medicine, Nashville, 1889; aged 81; died, Dec. 30, 1933, in the Baptist Hospital, of myocarditis following diphtheria.

Robert Lee Clayton, Celina, Texas; Atlanta Medical College, 1881; Tulane University of Louisiana Medical Department, New Orleans, 1898; aged 70; died, Dec. 1, 1933, of heart disease.

S. E. Boggs, Washington C. H., Ohio; Starling Medical College, Columbus, 1882; member of the Ohio State Medical Association; aged 73; died, Dec. 13, 1933, of heart disease.

Newell Hiram Hamilton, Santa Monica, Calif.; Rush Medical College, Chicago, 1877; aged 81; died, Nov. 7, 1933, of chronic interstitial nephritis and mitral insufficiency.

T. C. McCloud, Graham, Texas (licensed, Texas, under the Act of 1907); aged 48; was found dead, Dec. 21, 1933, of a skull fracture received in an automobile accident.

Ida B. Cameron, San Francisco; Hahnemann Hospital College of San Francisco, 1895; aged 67; died, Nov. 27, 1933, in the Children's Hospital, of cerebral hemorrhage.

Charles Maurice Stanley, Portland, Maine; College of Physicians and Surgeons, Boston, 1912; aged 67; died, Dec. 3, 1933, as the result of an automobile accident.

Richard Foster, Santa Ana, Calif.; Howard University College of Medicine, Washington, D. C., 1892; aged 75; died, Nov. 8, 1933, of organic heart disease.

John Bentley McMillan, Detroit; Detroit College of Medicine, 1889; aged 76; died, January 1, in the Henry Ford Hospital, of ulcer of the pylorus.

Samuel Ellis, Lees Summit, Mo.; Medical College of Ohio, Cincinnati, 1866; aged 98; died, Oct. 31, 1933, of bronchopneumonia and arteriosclerosis.

William Henry Maines Jeffs, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1888; aged 69; died, Nov. 14, 1933, of heart disease.

Oscar Jones, Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1901; aged 56; died, Dec. 23, 1933, of cerebral hemorrhage.

Lewis S. Mershon, Alhambra, Calif.; University of the South Medical Department, Sewanee, Tenn., 1895; aged 79; died, Nov. 6, 1933.

Edgar J. Farlow, Long Beach, Calif. (licensed, Iowa, 1886); aged 82; died, Nov. 25, 1933, of coronary sclerosis.

Correspondence

ERGOT IN PURPURA

To the Editor:—In a communication under the title "Use of Ergot to Contract Capillaries in Purpura" (THE JOURNAL, Dec. 30, 1933, p. 2137) J. C. Norris mentioned the use of this solution in drachm doses, and solution of pituitary, 0.5 cc., hypodermically.

The use of ergot in purpura is an old time remedy. In the *Journal of Cutaneous and Genito-Urinary Diseases* (**9**:241 [July] 1891) W. L. Munroe tells of a peculiar exanthem following an attack of epidermic influenza. The eruption consisted of a hemorrhagic exanthem. Part of the treatment given was as follows:

Tr. ferri chloridi.....
Ext. ergotae fl..... ää ɱ xx t. i. d.

Ergot was not an uncommon ingredient in prescriptions used in purpuric conditions of the skin at that time, but it fell into disrepute on account of the danger of producing ergotism.

JOHN G. DOWNING, M.D., Boston.

"SCHWEIGGER'S JOURNAL FÜR CHEMIE UND PHYSIK"

To the Editor:—Walton states (Historical Aspects of Enzyme Investigations, THE JOURNAL, Dec. 30, 1933, p. 2137), in regard to Schweigger's *Journal für Chemie und Physik*, that "the only available set of this journal is in the New York Public Library, at least in America." I wish to inform you that the Connecticut Agricultural Experiment Station possesses volumes 1 to 69 inclusive of this journal (1811-1833).

HARRY J. FISHER, New Haven, Conn.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TREATMENT OF PNEUMONIA AT HOME

To the Editor:—1. Kindly summarize the major steps in the treatment of pneumonia as it may be carried out in the home in the absence of expert nursing care. 2. Can the assistance of a laboratory be dispensed with? 3. Please include a few remarks on the status of antiserums. 4. Do you approve of the use of oxygen from small tanks with which it can be administered by the funnel method? 5. I believe that most of us in the country are still using largely expectant treatment and wish to know if we are justified. Please omit name. M.D., Idaho.

ANSWER.—1. Patients suffering from pneumonia may be satisfactorily cared for in the home without trained nurses if the physician carefully directs the nursing and is alert in interpreting and treating symptoms. To some extent the outcome will depend on the nursing. When the diagnosis of pneumonia is made, the patient should be put to bed in a well ventilated room and spared any unnecessary exertion or annoyance. He should not leave his bed for any purpose until the temperature and pulse are normal for a week. No purgative should be used. The bowels may be emptied with a mild laxative, suppositories, or an enema in bed. The diet should be nutritious, salty, and as generous as the patient desires.

Excessive coughing should be calmed with codeine sulphate, 0.03 Gm. (one-half grain). Pleuritic pain may be relieved by strapping with adhesive plaster, by codeine, 0.03 Gm., or by a small single dose of morphine sulphate, from 0.008 to 0.016 Gm. (one-eighth to one-fourth grain), never more. Headache should be treated with amidopyrine, 0.3 Gm. (5 grains), and restlessness and insomnia by one of the rapidly destroyed barbiturates, such as dial-Ciba, 0.2 Gm. (3 grains), or sodium amytal, 0.2 Gm. If ineffectual, the dose may be repeated in one hour.

Other menacing symptoms, such as cyanosis, distention, delirium and pulmonary edema, occur most frequently in cases in

which there is a bacteremia or anoxemia, and usually late in the disease. For a bacteremia there is no available remedy other than type-specific serum. A much larger amount of serum is required to treat patients later in the disease, or those suffering from a bacteremia, than if serum is given early and before the bacteremia develops.

Cyanosis can be met only by increasing the gradient between the alveolar and the blood oxygen by inhalation of oxygen with a mask, nasal inhaler, catheter or well ventilated tent.

Intestinal or colonic distention is met either with enemas, a rectal tube, turpentine stupes or doses of ampoules of pitressin, 1 cc., every hour, for three doses. Gastric distention may be relieved by carminatives, as peppermint, or by stomach tubage with a Levine tube.

Delirium requires large doses of the barbiturates with or without tribrom-ethanol (by rectum), 60 mg. per kilogram, to induce sleep (Bullowa, J. G. M.: *M. Clin. North America* **17**:103 [July] 1933).

Pulmonary edema may be met by the intravenous injection of dextrose, 50 per cent (100 cc.) and insulin (20 units) subcutaneously. This may be repeated in three hours.

The complications, such as empyema, must be promptly recognized and treated.

2. Pneumonia patients cannot be satisfactorily treated without some laboratory assistance. In many states this is provided by central laboratories to which sputum is sent. In almost every community a compound microscope is available, and with it the laboratory can be improvised. Special rabbit typing serum for pneumococci of types I, II and III and for some of the other types is prepared in capillary tubes by at least two manufacturers—Lederle Laboratories and Parke, Davis & Company. With these, a Neufeld test (Sabin, A. B.: THE JOURNAL, May 20, 1933, p. 1584) may be done when there is sputum and the type-specific serum available, and the type determined directly thus. This may be done by the physician who has familiarized himself with the technic, or by a technician. If a laboratory is available, the Sabin technic (Sabin, A. B.: *Proc. Soc. Exper. Biol. & Med.* **26**:492, 1929) should be employed, with the peritoneal exudate of a mouse injected with sputum, and blood cultures taken. A failure to find pneumococci of types I, II or III in the sputum does not exclude the pneumococcus as the cause of the disease, but finding a type is very strong presumptive evidence that it is responsible for the pneumonia. The report of type or group IV should not be accepted as evidence that the patient is not suffering from one of these types (I, II or III) or from some other specific type. The report usually means that the laboratory has not found a precipitation or agglutination reaction with serum for pneumococci of types I, II or III. Type I, II or III pneumococci may be present but not in sufficient numbers to give the test, or there may be inhibiting substances.

3. The favorable results of serum treatment in pneumonia due to pneumococci of types I and II have been amply shown by Cole (THE JOURNAL, Sept. 7, 1929, p. 741), Park and Cooper (THE JOURNAL, April 28, 1928, p. 1349), Bullowa (*New York State J. Med.* **33**:13 [Jan. 1] 1933), Cecil and Sutliff (THE JOURNAL, Dec. 22, 1928, p. 2035), Cecil and Plummer (THE JOURNAL, March 5, 1932, p. 779) and Heffron and Anderson (THE JOURNAL, Oct. 21, 1933, p. 1286). In Bullowa's statistics in alternately treated cases at Harlem Hospital, the mortality in serum-treated cases was reduced to 15 per cent of all cases of type I admitted to the service, as contrasted with 30 per cent in the controls. In the state-wide Massachusetts series, in which some of the cases were treated at home, it was reduced more than half than in the controls, to 10.6 per cent. The treatment with type II serum is definitely helpful, though the results are not as striking as with type I; it prevents invasion of the blood by pneumococci. It is even more important than with type I that the serum be given early and in large amounts. Bullowa has indicated the value of specific serum in type VII (Cooper) and type VIII (Cooper). Serum for types I and II and for type VII is commercially available. Several other types are being experimentally studied but reports of the results have not been published.

Since approximately 50 per cent of all cases of lobar pneumonia are due to pneumococci of type I and type II, duovalent serum for type I and type II may be administered in advance of typing (at least 20,000 units, twice). In cases known to be due to pneumococcus type I, the doses should be repeated until clinical improvement is manifest, as evidenced by a fall in the pulse rate. For type I, about 100,000 units is required for moderately severe nonbacteremic cases, and 200,000 units for bacteremic cases. This should be given in twenty-four hours. For type II, much larger doses are required.

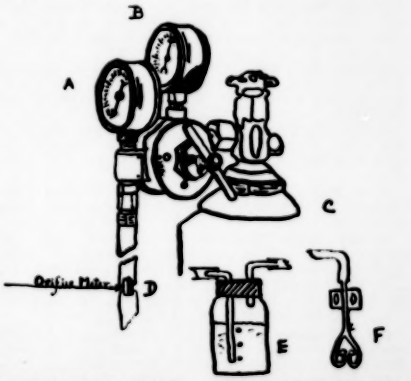
Though it is desirable that cases be treated before the fourth day, serum may be effective at any time, even late in the disease, and it should not be withheld because of the length of time the patient has been ill.

4. The administration of oxygen from small tanks with a funnel is not approved. The funnel must be held close to the face, which procedure interferes with escape of carbon dioxide and of moisture, or at such a distance as prevents an adequate increase of the concentration of oxygen in the air breathed. A preferred method is with an inhaler (Connel, Sanford or Bullowa) which delivers moistened oxygen just inside the nares, or with a catheter or catheters leading to the nasopharynx (Bullowa, J. G. M.: *Internat. Clin.* **4**:262 [Dec.] 1931).

The small tanks contain insufficient oxygen for continuous treatment. They contain either 11 cubic feet (100 gallons) or 17 cubic feet (130 gallons) of oxygen (7½ gallons = 1 cubic foot) and cost about half the price of large tanks containing 220 cubic feet (more than twenty times as much oxygen). The small tanks have the further disadvantage of usually having neither a gage to indicate the rate of flow nor one to show the cylinder pressure. The latter tell how much oxygen is in the tank. Large tanks of oxygen containing 220 cubic feet are available wherever there is a welder (which is in nearly every garage in almost any community).

There is absolutely no difference between industrial and "medical" oxygen. Some salesmen attempt to make physicians believe there is.

With large tanks (220 cubic feet) at 2,200 pounds pressure, a pressure regulator and a flow gage are necessary. The variable orifice meter or float gage, calibrated for liters per minute, is the preferred form. In the absence of such a clinical regulator, one may improvise with the welding equipment of the garage. The pressure regulators of welders are said to be



Improvised clinical regulator for use with industrial oxygen cylinder: *A*, delivery gage, and *B*, cylinder gage on *C*, industrial oxygen cylinder (220 cubic feet); *D*, orifice in welding tip or brass slug; *E*, wash bottle; *F*, nasal inhaler (Bullowa type).

accurate to 3 per cent, and they begin to register at 2 pounds pressure. The flow rates of gases at a given pressure through a given orifice are well known.

An orifice meter may be improvised, suitable for clinical use, by placing a metal disk with a suitable drill hole in series with the welding regulator, as shown in the accompanying diagram. The amount of gas passed in liters per minute is approximately half the number of cubic feet per hour for the given pressure. An Airco No. 1 welding tip may be used (No. 68 drill), or that of some other manufacturer, with the same size opening.

The table gives the amount of gas, in cubic feet per hour, passing common drill sizes at the pounds pressure indicated. The figures, divided by 2, give liters per minute.

The gas should be passed through a water bottle to prevent drying of the nasal mucous membrane. At 4 liters per minute, a large tank of oxygen provides enough oxygen for continuous inhalation for more than twenty-four hours, at a cost of little more than $5 for oxygen.

Oxygen should be given continuously, if indicated. It is good practice not to wait until there is marked cyanosis before

administering oxygen. The oxygen gradient should be increased before the mechanism that prevents cyanosis is exhausted. At Harlem Hospital, oxygen by nasal inhaler is given, in pneumonia, when the normal respiratory rate is doubled, or 36 per minute, or the pulse reaches 120, or if there is cyanosis of the nail beds (Bullowa: *Internat. Clin.* 4:262 [Dec.] 1931).

The intermittent administration of oxygen with a funnel was born of economizing with the gas in the days of small and expensive cylinders before liquefaction or electrolytic oxygen was made, and it has no place in the medicine of today. Relatively inexpensive oxygen, suitable for inhalation, is in almost every repair garage, and the apparatus for increasing the concentration of the pharyngeal oxygen by at least 50 per cent can be improvised almost anywhere from the welder's equipment. The physician or hospital may have a clinical regulator available for an emergency.

Flow in Cubic Feet Per Hour

Pressure	Drill No. 60	Drill No. 65	Drill No. 70
1	9.0	7.0	4.4
2	12.8	9.8	6.2
3	15.7	12.0	7.6
4	18.0	13.8	8.7
5	20.3	15.4	9.8
6	22.1	16.8	10.7
7	23.8	18.2	11.6
8	25.6	19.4	12.3
9	27.0	20.6	13.1
10	28.4	21.6	13.8

5. Unfortunately, the physician treating pneumonia must treat "expectantly" many patients suffering from pneumonias not due to pneumococci or due to pneumococci of types for which an effective specific curative serum is not available. A physician is not justified in failing to treat aggressively with serum a disease (pneumonia due to pneumococcus type I) in which the serum has been shown by many observers, with ample controls, to cut the death rate in half and thus save from ten to fifteen lives per hundred patients. Prompt administration of type I serum shortens the illness and prevents bacteremia and other complications. In this country, physicians are not justified if they fail to treat diphtheria with antitoxin. The results from the use of serum in type I pneumonia, if it is used early and in sufficient quantity, are almost as satisfactory as those with diphtheria antitoxin when used early in diphtheria.

The aggressive treatment of many acute abdominal conditions has displaced the so-called expectant, or laissez-faire, treatment, even in the country. The aggressive treatment of pneumonia with serum and oxygen requires skill and devotion. A significant country-wide reduction in the mortality from pneumonia will appear when the physicians of the country employ efficiently, in the treatment of the pneumonias for which serum is or becomes available, the newer methods, especially serum and oxygen.

RHINITIS AND SINUSITIS

To the Editor:—A man, aged 55, is suffering from a chronic catarrhal condition of the rhinopharyngeal region. There is continuous hacking of the throat for the removal of a mucous discharge of a thick, sticky quality. There is a wheezing respiration with many coarse râles heard over the bronchi during any accentuation of the condition by an acute cold. There were also at a considerable period at the beginning of treatment many râles in the right lower lobe. The patient had a discharge from the ear from the age of 18 to 26 years at intervals, which cleared up with the removal of the tonsils. The chronic catarrhal condition, together with a susceptibility to colds, increased gradually in intensity from the age of 26 years. Two years ago, after examination in a clinic of high repute, a nasal operation was done for removal of obstruction and establishment of drainage but without much benefit. Beginning in March, 1933, when the patient came under my care, I have done sinus lavage, administered some iodide intravenously, and given a long series of injections of vaccine made up of a polyvalent entolysate of the rhinopharyngeal organisms. All seems to have resulted in considerable benefit. Please give suggestions as to the care of patient. Please omit name and address.

M.D., Wisconsin.

ANSWER.—Before the hacking and postnasal dropping are dismissed as manifestations of a catarrhal condition, it is necessary to rule out by every means at one's disposal the presence of a suppurative accessory nasal sinusitis. If and when it is definitely proved that the secretion in the pharynx does not come from the sinuses, one may diagnose a catarrhal rhinopharyngitis. The chronic bronchitis present could be secondary to a suppurative sinusitis. In this event improvement in the nasal condition might ameliorate the chest complaint. In the absence of pus in the nose the bronchitis is in all likelihood a concomitant but unrelated disease.

In addition to the local nose treatment already instituted, one could consider removal of the patient for a time to a warm dry climate such as is found in Arizona or New Mexico. This would offer a good prognosis if the patient now dwells in an unfavorable locality, as in a northern industrial city situated on a large body of water and with a variable temperature and a dust and smoke laden atmosphere.

SEXUAL INFANTILISM—DYSTROPHIA ADIPOSOGENITALIS

To the Editor:—Recently a case of hypopituitarism came under my care. The patient, a boy, aged 15 years, weighs 168 pounds (76 Kg.) and has definite sexual infantilism. The basal metabolic rate is —3. I should like to know the present status of glandular therapy in this disorder. An outline of the regimen in such a case would be appreciated.

O. O. BESSON, JR., M.D., March Field, Calif.

ANSWER.—It may be assumed that the condition from which this boy suffers is a dystrophia adiposogenitalis. This is a condition of obesity associated with sexual infantilism. The opinion is divided as to whether the disorder is due to a pituitary deficiency or to some disturbance in the hypothalmic region of the brain.

There is considerable difference of opinion as to the result of pituitary treatment. Clinicians of considerable experience have not succeeded in remedying the condition with this line of treatment.

On the other hand, more enthusiastic physicians maintain that larger doses of pituitary preparations, continued over a longer period, will cause improvement in these patients. It is obvious that, if there is a tumor or pressure on the hypothalmus, glandular treatment will be of no ayail.

In THE JOURNAL, October 14, Brosius and Schaffer reported the successful treatment of a case of complete aspermia with bilateral testicular atrophy by injections into the glutei of a preparation of anterior pituitary-like principle from pregnancy urine. This report carries with it a suggestion of the future possibilities in the treatment of sexual infantilism.

DERMATITIS FROM CAUSTIC SODA

To the Editor:—One of my patients three or four years ago contracted eczema, brought on by exposure to caustic soda, and since then has been afflicted with it almost continuously. The eruption has been generalized, uncommonly severe and difficult to cure. Could exposure on another occasion to the fumes of caustic soda be regarded as a causative factor in a further outbreak? The outbreak occurred on a very hot July day this year and was coincident or appeared shortly after the dumping of caustic soda into a sink. Please omit name and address.

M.D., Massachusetts.

ANSWER.—The action of various skin irritants appears to be such that a foreign protein is produced on or within the skin, with the further result that the affected person becomes sensitized. Thereafter even limited exposure to the same irritant may be followed by severe skin damage, which is chiefly anaphylactic in character. It cannot be said that the body is specifically sensitized to the offending chemical agent, but it is sensitized to the peculiar protein produced when that irritant is in contact with the skin. It is believed that the dust of caustic soda—or the fumes originating from such caustic soda brought in contact with water—may either bring about a new chemical burn of the skin or provoke a dermatitis related to a previous outbreak from the same cause months or years earlier.

CALCIUM IN BLOOD SERUM

To the Editor:—The remark has been made that blood serum calcium determinations are valueless, since quantitative calcium analysis of blood serum cannot be done accurately. Is there any justification for this statement?

G. D. GUILBERT, M.D., Tucson, Ariz.

ANSWER.—The statement that blood serum calcium determinations are valueless is incorrect. The quantitative determination of serum calcium, if properly carried out according to the instructions of Clark and Collip, should reduce errors to 2 per cent or less. The method of Clark and Collip is described in Kolmer and Boerner's Approved Laboratory Technic, New York, D. Appleton & Co., 1931.

Blood calcium determinations are indicated as an aid to diagnosis when osteomalacia, polycystic bone disease, which is often associated with a tumor of the parathyroid, rickets, parathyroid disorders or infantile tetany is suspected. It is especially important in following the results of treatment with parathyroid extract. Excessive doses of viosterol may cause an increase in the calcium level of the blood.

The normal blood serum calcium is about 9 to 12 mg. in 100 cc. of serum. Osgood and Haskins place the normal figures for serum at 9 to 14 mg. and for plasma at 10 to 15 mg.

ENEMAS OF METAPHEN AND GLYCERIN IN COLITIS

To the Editor:—A woman, aged 47, married, with five children, weighing 115 pounds (52 Kg.), white, well educated, of upper class society, energetic and not especially nervous, presents a puzzling reaction to some medication I recently gave her. At 19, she had a nervous collapse (?) followed very soon by the syndrome of mucous colitis. Rest in bed cleared that condition for a time. Several years later some sort of ulcers developed in the rectum. During her pregnancies she seemed entirely well. Five years ago a diagnosis of visceroptosis was made and rest in bed and corseting seemed to correct the condition. There have been times when the ulcers became bothersome and she had them treated by cautery or some such method. I saw her first about six weeks ago, when she complained of loose watery stools, usually involuntary in the morning, with the constant appearance of small amounts of bright red blood similar to ulcer symptoms. She maintains that the stools are a straw colored water and only occasionally contain any formed matter of size. Three weeks ago I prescribed metaphen, 1:500, and glycerin, equal parts. The patient had a slight nausea, but the bleeding and water stools disappeared, and she had one or two perfectly formed, normal stools each day with no involuntary tendency. Each time the metaphen was stopped, constipation set in, and in a day or two the water stools reappeared, with blood. Laboratory examination gives essentially negative results, and there does not seem to be any suggestion of malignancy. I am especially interested in the peculiar reaction to the metaphen and glycerin. Is the regulation of the bowels due to the drug, and if so, is there any contraindication to the indefinite continuance in the use of the mixture of glycerin alone? The symptoms reappear so promptly when she stops it that the patient does not feel like discontinuing it. I would be glad to have any other suggestions. Can tonic doses of ultraviolet radiation be counted on to help this condition? Please omit name.

M.D., Pennsylvania.

ANSWER.—Glycerin injected into the rectum is a reliable evacuant; and, if the mixture of metaphen solution and glycerin, equal amounts, was injected into the rectum, one would not hesitate to ascribe the result to the glycerin. Whether this is correct could be easily tested for by employing either of the ingredients alone. If the effect is due to the glycerin, there is a possibility that in time regularity of bowel movement may be secured by progressive dilution of glycerin, as glycerin enemas have a tendency to leave an irritability of the rectal mucosa as an after-effect. The patient's symptoms suggest a possibility of ulcerative colitis, the treatment of which demands thoroughgoing roentgen and bacteriologic study to determine the best course to pursue. Ultraviolet rays are not likely to be of much value in this condition.

SCOTOMA SCINTILLANS AND SYNCHESIS SCINTILLANS

To the Editor:—I have a patient who has scotoma scintillans in both eyes to such an extent that it troubles her greatly. She is a teacher and it is unusually important that her vision remain good. In searching through the literature I find one reference in which scotoma scintillans occurred in an allergic individual who also was having other eye disturbances. I have found that scotoma scintillans depends on infection. I am wondering if you can help me out by any further data on the literature.

ORVILLE HARRY BROWN, M.D., Phoenix, Ariz.

ANSWER.—The question is probably misstated. If scotoma scintillans is meant there need be no fear for the ocular future, for that symptom is merely one of the prodromals of an attack of migraine. But if synchesis scintillans is meant (and the question would seem to indicate that), a different condition is involved. For a complete digest of the literature, the inquirer is referred to the Graefe-Saemisch Handbuch der gesammten Augenheilkunde, ed. 11, vol. V, chapter VIa, by H. Lauber, p. 107. This contains the literature up to 1922. From then to date, the inquirer is referred to the Kurzes Handbuch der Ophthalmologie, vol. V, p. 346, Synchesis Scintillans, by A. Jess.

TREATMENT OF POTT'S DISEASE

To the Editor:—A man, aged 29, has had Pott's disease since 1923. The Albee operation was performed on him in 1928 with good results until a few months ago, when he began to feel pain and fatigue in the back. At inspection, a marked kyphosis and right scoliosis were present. Roentgenograms showed complete destruction of the body of the eleventh thoracic vertebra, while the bodies of the tenth and twelfth vertebrae were partly destroyed. The anterior picture revealed an old calcified abscess. A cure on the Bradford frame was recommended. I would like your appreciation of the method for this case. Can it be carried on in the patient's home? If so, would you give me sufficient instructions regarding the structure of such a frame to enable me to have one made for my patient?

A. R. CORÉ, M.D., Brownsburg, Que.

ANSWER.—The roentgen examination must be checked with the results of former roentgen examinations in order to determine the progress or retrogression.

Home treatment may be successful up to a certain point. The Bradford frame treatment may be carried out at home if hospital nursing is carried out. This is comparatively simple and can be taught to any intelligent person.

The Bradford frame is a frame usually made of three-eighths inch gaspipe bent into a rectangular form. An elbow is placed at each of the four angles. The width of the frame is the distance between the two scapulae at the point of the glenoid. The length should be about 8 inches longer than the height of the patient. The curve of the frame depends on the individual patient. After the frame is bent, it is covered with two or three sections of canvas. This canvas should have brass eyelets into which heavy lacings are passed, on the under surface of the frame, so that the patient is suspended on a canvas frame.

The roentgenograms should be checked and rechecked with the idea of determining whether another operation of the Albee or Hibbs type (or some combination of the two) should be prescribed, either immediately or after a period of one or two months of Bradford frame treatment.

USE OF MENTHOL INTERNALLY

To the Editor:—I noticed the following article in a small paper sent out by a drug company: Zur abortiven Grippebehandlung (Abortive Treatment of Grip), by Friederike Schnapek (*Wien. klin. Wchnschr.*, Sept. 8, 1933): "Grip in uncomplicated cases may be aborted by the administration of 0.5 Gm. of menthol within a space of two hours. This should be done at an early stage. In from eighteen to twenty-four hours the patient is fever free. Cough and nasal affections are avoided by this treatment, and the physicial equilibrium is restored. None of the late sequels of grip follow. The menthol may be given in any shape or form with the same effect." I tried to make up a prescription containing 8 grains of menthol, using alcohol to dissolve the menthol and added syrup to 1 ounce. About one-fourth teaspoonful of this nearly choked me, the fumes coming out of my nose and eyes. How could 8 grains of menthol be prescribed for internal use other than in capsules?

DEVERE RITCHIE, M.D., Harrisburg, Pa.

ANSWER.—The author prescribed the menthol in a liberal quantity of olive oil; and for patients who objected to drinking the oil, he prescribed the menthol dissolved in a small quantity of oil in capsules. Such a prescription might be written as follows:

℞ Menthol	0.5 Gm.
Olive oil	4.0 cc.
Divide into 12 capsules.	
Label: One every ten minutes until all are taken.	

It would hardly be desirable to make it more concentrated, as even this strength is rather fiery. Incorporating the menthol in a wax mass, formed by beeswax 1 part, castor oil 3 parts (as suggested by N. S. Davis) might make it possible to reduce the quantity of the diluent and the number of capsules. One would hardly want to inflict the powdered menthol on a patient's stomach. Of course, there is no good evidence that menthol used in this way actually aborts a cold.

DEATH FROM FRIGHT

To the Editor:—This question has been presented to me several times: "Can a man die from fright?" alone, without any history of actual physical injury. I should like to know what available evidence there is in favor of and against, together with references for this question. If this question is answered in THE JOURNAL, please omit my name.

M.D., Chicago.

ANSWER.—The question was referred to an eminent authority in legal medicine. He says that in a large experience of over forty years of actual postmortem observation abroad and in this country he has not encountered a single case of death from fright in a person of sound physical condition. Persons afflicted with serious valvular lesions or with marked coronary sclerosis and interstitial myocarditis may die suddenly after fright, especially if aged. Sudden death after plunging into cold water may be considered an example of death following fright with shock.

References on this subject may be found in any of the large textbooks on medicolegal medicine—Haberda and others.

ACROPARESTHESIA

To the Editor:—Will you please tell me the treatment of acroparesthesia? I have a typical case and cannot find much in the literature on the subject. Phenobarbital, 1½ grains (1 Gm.), has only slight effect on the pain and the patient is losing much sleep. Please omit name.

M.D., Kentucky.

ANSWER.—The term acroparesthesia merely implies paresthesia of distal parts. The latter occurs in a great many conditions, notably combined cord degeneration, tabes, multiple neuritis and arteriosclerosis. The question no doubt relates to the ill defined vasomotor or trophic neurosis often referred to as acroparesthesia and paraded as a clinical entity, which

it is not. One type is described as occurring in young persons, another and more common one at the menopause or later. The only observer who makes claims for a curative treatment is J. Borak (*Endocrinologie* **5**:9 [Oct.] 1929), who describes excellent results from roentgen treatment directed at the hypophysis. Vasodilators or vasoconstrictors are indicated when there is objective evidence of such indication. Ovarian hormones may be tried in menopause cases associated with other signs of menopausal neurosis. Quinine, strychnine, arsenic, iron, phosphorus and ergotine have been recommended, as has the faradic brush; according to Oppenheim it is well for such patients to keep their fingers out of water.

EARLY INVESTIGATIONS OF ANTRUM OF HIGHMORE

To the Editor:—I wish to know the name of the physician who first described a suppurative antrum of Highmore and the date of the discovery. The following may facilitate the finding of the name: He was an English physician who suffered from a foul breath which caused him to lose his practice. He went to Egypt for his health, where he observed the dripping of the ill smelling pus from his nose as he leaned over. Please omit name.

M.D., New York.

ANSWER.—According to Wright, it was Nathaniel Highmore who in 1651 described the sinus named after him. He gave anatomic data with illustrations and mentions a case of suppuration on an old woman who had bad teeth. In 1675, Velpeau quotes Molinetti, who entered the antrum of Highmore in a patient suffering from severe pain due to suppuration in this cavity, with a trephine through a crucial incision in the tissues of the cheek. Morgagni intimated that Jean Henry Meibomius prior to 1655 was the first to enter the maxillary sinus by way of the alveolar process. The credit is generally given to William Cowper, however, whose publication appeared in 1717. He used a suitable instrument, entering the antrum though a tooth socket from which the tooth had been extracted for this purpose. Following the entrance of the instrument into the antrum, irrigations were practiced by him. Following Cowper, there were others who suggested opening the sinus in a number of ways.

ANKYLOSIS OF KNEE

To the Editor:—Will you give me the best treatment for ankylosis of the knee joint of about three months' standing caused from a tracture below the knee and the cast being left on too long. I have not been able to find a book that gives anything on it. Please omit name.

M.D., Illinois.

ANSWER.—It is desirable to know whether the ankylosis is fibrous or osseous. One should know the exact nature of the fracture, stating whether it extended into the knee joint. It should state whether the knee is flexed or extended. A plaster cast should not be discredited or blamed for more than its share.

Joint irregularity and the integrity of the tibial plateau are important considerations. Roentgen reports should be given.

The various factors under treatment to be mentioned are wedged casts, leg traction below the knee, the use of the Zander apparatus, physical therapy including radiant heat, massage and gentle manipulation. If these measures are unsuccessful, one would recommend very gentle manipulation under gas induction, followed by ether. This manipulation may have to be repeated and should be followed by physical therapeutic measures.

EPILEPSY

To the Editor:—An Irish-American woman, aged 33, single, has had for the past nine months typical attacks of epilepsy, at first every month at the beginning of her period and then every two weeks. The attacks appeared only at night and there were as many as three to four during one night. After four months of a ketogenic diet, increasing from number 2 to number 4, the attacks now come only the night before the period appears and there is only one convulsion. Does it not appear that the pituitary is at fault and would not hypodermic pituitary medication of some kind help? Roentgenograms were taken of the patient's head and no old fracture or abnormality of the pituitary was noted. Please omit name.

M.D., Massachusetts.

ANSWER.—The first appearance of epileptic seizures at the age of 33 always suggests the possible presence of an organic brain lesion and indicates the necessity for a particularly careful neurologic examination. At the menstrual period there is normally a temporary alteration in the chemistry of the blood, a fact that may render the brain more liable to the explosive discharges of epileptic nature, provided a cause for the seizures is present. The suggestion of pituitary etiology from the facts given in this case would be mere speculation.

EFFECTS OF ACTIVE MATERIALS FROM LETTUCE

To the Editor:—In popular articles I have repeatedly seen the statement that there is present in lettuce some sleep-producing alkaloid, but I have not been able to find any reference to it in any scientific work. May I ask you whether there is any such alkaloid present in lettuce and if so what alkaloid it is? Is it ever found in sufficiently large quantities in lettuce to produce lethargy or sleep in those eating lettuce? Any references you can give me to scientific literature will also be most welcome. Kindly omit name.

M.D., California.

ANSWER.—There is no such alkaloid in lettuce. Lactuca virosa, the wild lettuce, contains a milk juice, which, when inspissated, is known as lactucarium. This has been called "lettuce opium" and credited with sedative effects. As it does not contain any alkaloid and is not narcotic, the term lettuce "opium" is applicable only if the word is used in its etymologic sense, meaning "juice." Lactucarium was introduced by Dr. Coxe of Philadelphia (*Tr. Am. Phil. Soc.* **4**, 1799, cited in Lloyd's "Origin and History of Vegetable Drugs," 1921) but, because of unreliability of its effects, its use has been abandoned.

FIRST CATHETERIZATION OF EUSTACHIAN TUBE

To the Editor:—Would you be kind enough to advise me as to who was the first to introduce the eustachian catheter method of middle ear inflation?

BENJAMIN BRONSON, M.D., Westfield, Mass.

ANSWER.—The histories are unanimous in assigning credit to Guyot as the first to catheterize and inflate the eustachian tube. His report was made in 1724 (Histoire de l'Académie royale des sciences, 1724, p. 37). Guyot successfully passed a catheter through the oral cavity, under the soft palate into the mouth of the eustachian tube. In 1741, Archibald Cleland, an English military surgeon, first reported passing a catheter into the eustchian tube by way of the nose.

The subject is referred to by:

Garrison: History of Medicine, 1929.
Politzer: Geschichte der Ohrenheilkunde, Stuttgart, 1907, vol. 1.

GROWTH OF DIABETIC CHILD

To the Editor:—A boy, aged 16, weighing 116 pounds (52.6 Kg.) and 51 inches (129.5 cm.) tall has had diabetes since he was 5 years of age and has been on insulin for several years. His parents are apprehensive about his size. In your opinion would there be anything that might increase his growth? Please omit name.

M.D., Nebraska.

ANSWER.—Growth can continue even up to 26 years of age unless the epiphyses have closed. Control of the diabetes with sufficient insulin, exercise and a diet of carbohydrate 140-175 Gm., protein 90-100 Gm. and fat 90-110 Gm. will almost certainly produce growth. Thyroid, 0.065 Gm. after each meal and pituitary whole gland, 0.13 Gm. three times a day, may help, but any patient receiving glandular treatment should be examined at least every three months.

MOTTLED ENAMEL

To the Editor:—Several persons who have read the story about the mottled enamel situation in the West have written to inquire what is the objection to mottled enamel. Is there any objection to it, aside from the fact that it is deleterious to appearance?

G. EDWARD PENDRAY, New York.

ANSWER.—There is apparently no other objection to mottled teeth than the one mentioned, though in many cases the discoloration is extremely conspicuous. Dental decay is certainly not more common in mottled teeth; indeed, both McKay and G. V. Black are of the opinion that individuals with this condition have relatively little decay (*J. A. Dental A.* **15**:1429). No other abnormal changes of the mouth or teeth have been associated with this developmental fault.

USE OF ACIDOPHILUS CULTURES

To the Editor:—I should like some information on the acidophilus treatment for constipation in which bacteria are believed to be the cause. Are the fresh cultures the only satisfactory method of using the preparation? If so, where are they obtained and how prepared? Are there any proved vaccines on the market for this purpose? Please omit name.

M.D., Minnesota.

ANSWER.—Bacillus acidophilus is not actively laxative. Lactose taken in liberal quantities may become so through the action of Bacillus acidophilus. Buttermilk is a good and inexpensive method of lactic acid bacillus therapy. When this cannot be used for some reason or other, any one of the various cultures on the market, which must be relatively fresh, may be used. N. N. R. lists quite a number of them. Vaccines (for subcutaneous injection) are not employed.

INTRAVENOUS INJECTION OF DEXTROSE SOLUTION

To the Editor:—Forty-eight hours after operation, a patient having lost considerable blood, what amount of 5 per cent dextrose can be given intravenously with safety, the patient weighing 140 pounds (63.5 Kg.)? What are the symptoms produced by too large an amount? Will a liter given rapidly produce untoward symptoms and what are they usually?

H. D. DIESSNER, M.D., Minneapolis.

ANSWER.—It is the rate of injection rather than the quantity that is of importance. The syndrome of too rapid injection, for which the term "speed shock" has been advocated, consists of a fall in blood pressure, respiratory irregularity and dyspnea, salivation, vomiting, diarrhea, muscle weakness, muscle spasm, and impaired coagulability of the blood. Even death may result. A rate of from 2 to 3 cc. per minute (intravenous drip) is considered safe.

EARLY SITTING AND STANDING OF INFANT

To the Editor:—Is there any foundation for the common belief that early standing causes bow-legs and that early sitting injures the infant back? My 5 months old infant likes nothing better than to sit unsupported on the bed, remaining sitting from one to two minutes. She shows no signs of discomfort when she falls but immediately tries to raise herself again. She also seems to enjoy standing when supported. I believe she has no signs of rickets. Please omit name. M.D., New York.

ANSWER.—There is foundation for the belief mentioned. If the infant can maintain good posture while sitting unsupported, and standing with support, it should be encouraged frequently, but for short periods.

ADMINISTRATION OF IRON TO CHILDREN

To the Editor:—Please advise me the best way of administering large doses of iron to children.

ABRAHAM TRUMPER, M.D., Montgomery, Ala.

ANSWER.—Iron and ammonium citrate may be dissolved in syrup of orange flowers, as in the following:

℞ Iron and ammonium citrate..... 10 Gm.
Syrup of orange flowers.....to make 120 cc.
M. Label: Teaspoonful in water three times a day after meals.

COCAINE AND ANTISEPSIS

To the Editor:—Can you tell me the effect of cocaine in 5 per cent solution on micro-organisms? I have frequently thought in spraying the nasal mucosa preliminary to applying antiseptics for acute infections that the cocaine perhaps in itself was sufficient to destroy organisms. Please omit my name in your reply. M.D., New York.

ANSWER.—Cocaine is not antiseptic. Indeed, its solutions require sterilization or preservation by means of bacteriostatic agents.

VENESECTION IN CEREBRAL HEMORRHAGE

To the Editor:—What about bleeding as a treatment for cerebral hemorrhage? R. A. HILLS, M.D., Russell, Iowa.

ANSWER.—There is considerable difference of opinion just as there is concerning lumbar puncture in spontaneous and traumatic subarachnoid hemorrhage. Since there is often difficulty in distinguishing between cerebral hemorrhage and thrombosis, venesection should not be thought of unless a full pulse, red face and other signs point conclusively to hemorrhage. With the diagnosis virtually assured, such experienced clinicians as Oppenheim, Bing and Dana recommend venesection.

DIAGNOSIS OF MASTURBATION

To the Editor:—Are there any infallible, easily recognizable stigmas of the sex organs (both sexes) due to masturbation? I have read many descriptions of such marks and signs which I have known to be absent in chronic habitues. I am connected with two institutions in which this question often arises. Kindly give me your opinion. Please omit name. M.D., Pennsylvania.

ANSWER:—There is absolutely no sign by which one can detect the presence of masturbation in a person. Many of these sufferers imagine that any one seeing them can immediately know that they practice masturbation, but this is not so.

DEAFNESS AFTER SKULL FRACTURE

To the Editor:—Please tell me what length of time should elapse following a fracture of the skull involving the eighth nerve, in which there is total deafness, before one can assume that the deafness is total and irreparable. T. C. KERNS, M.D., Durham, N. C.

ANSWER.—A skull fracture producing total deafness has injured the eighth nerve, the cochlea or both these structures. The deafness as a rule is present at once, is usually complete and only rarely is there recovery.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: Cleveland, June. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written (Group B Candidates).* The examinations will be held in various cities of the United States and Canada, April 7. *Oral* (all candidates), Cleveland, June 12. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: Cleveland, June 11. Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Cleveland, June 11. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

CALIFORNIA: Los Angeles, Feb. 26-March 1. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Basic Science.* New Haven, Feb. 10. *Prerequisite to license examination.* Address, State Board of Healing Arts, 1895 Yale Station, New Haven. *Regular.* Hartford, March 13-14. *Endorsement.* Hartford, March 27. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* New Haven, March 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

IOWA: Des Moines, Feb. 20-22. Dir., Division of Licensure and Registration, Capitol Bldg., Des Moines.

MAINE: Portland, March 13-14. Sec., Dr. Adam P. Leighton, Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, March 13-15. Sec., Dr. Stephen Rushmore, 144 State House, Boston.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates, Feb. 14-16, May 7-9 (limited to a few centers), June 25-27, and Sept. 12-14. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEW HAMPSHIRE: March 15-16. Sec., Dr. Charles Duncan, State House, Concord.

NEW YORK: Albany, Buffalo, New York and Syracuse, Jan. 29-Feb. 1. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, Room 315 Education Bldg., Albany.

OKLAHOMA: Oklahoma City, March 13-14. Sec., Dr. J. M. Byrum, Mammoth Bldg., Shawnee.

PUERTO RICO: San Juan, March 6. Sec., Dr. O. Costa Mandry, Box 536, San Juan.

VERMONT: Burlington, Feb. 7-9. Sec., Dr. W. Scott Nay, Underhill.

WEST VIRGINIA: Charleston, March 12. State Health Commissioner, Dr. Arthur E. McClue, Charleston.

WYOMING: Cheyenne, Feb. 5. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

Nevada November Report

Dr. Edward E. Hamer, secretary, Nevada State Board of Medical Examiners, reports the written examination held in Carson City, Nov. 6, 1933. The examination covered 11 subjects and included 110 questions. An average of 75 per cent was required to pass. Two candidates were examined, 1 of whom passed and 1 failed. Four physicians were licensed by reciprocity. The following schools were represented:

PASSED	Year Grad.	Per Cent
St. Louis University School of Medicine	(1933)	86.6

FAILED	Year Grad.	Per Cent
Hahnemann Med. College and Hospital of Philadelphia	(1902)	59.1

LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of California Medical School	(1930), (1932)	California
Loyola University School of Medicine	(1930)	California
University Medical College of Kansas City, Missouri	(1905)	California

Minnesota October Report

Dr. E. J. Engberg, secretary, Minnesota State Board of Medical Examiners, reports the oral, written and practical examination held in Minneapolis, Oct. 17-19, 1933. The examination covered 12 subjects and included 60 written questions. An average of 75 per cent was required to pass. Forty-one candidates were examined, 40 of whom passed and 1 failed. Five physicians were licensed by reciprocity and 2 by endorsement. The following schools were represented:

PASSED	Year Grad.	Per Cent
College of Medical Evangelists	(1933)	88.3
University of California Medical School	(1932)	90.3
Northwestern University Medical School	(1931) 91.4, (1933)	92.3
Rush Medical College (1931) 88.2, 90.2, (1932) 91.6	(1930)	86.3
State University of Iowa College of Medicine	(1932)	95

Tulane University of Louisiana School of Medicine	(1930)	95.5
Johns Hopkins University School of Med.	(1927) 88.3 (1931)	87.3
University of Minnesota Medical School	(1932)	85.1*
85.6,* 87.2,* 89.2, 89.3,* 90.1, 90.5,* 91.5,* 93.1,* (1933) 81.3, 85.3, 85.5, 85.6,* 86.1,* 86.2, 86.5, 86.5, 87.3, 88,* 88.5, 88.5, 89,* 91.1,* 91.2		
Temple University School of Medicine	(1931)	87.5
University of Pennsylvania School of Medicine	(1933)	90
University of Wisconsin Medical School	(1932)	90.5
Queen's University Faculty of Medicine	(1930)	93.2

FAILED

School	Year Grad.	Per Cent
University of Minnesota Medical School	(1930)	74

LICENSED BY RECIPROCITY

School	Year Grad.	Reciprocity with
University of Illinois College of Medicine	(1932)	Illinois
University of Michigan Medical School	(1924), (1932)	Michigan
Univ. of Minn. Medical School	(1930) Wisconsin, (1932)	Illinois

LICENSED BY ENDORSEMENT

School	Year Grad.	Endorsement of
Tulane University of Louisiana School of Medicine	(1932)	N. B. M. Ex.
University of Minnesota Medical School	(1930)	N. B. M. Ex.

* The applicant has received an M.B. degree and will receive an M.D. degree on completion of internship.

Michigan June Examination at Ann Arbor

Dr. J. Earl McIntyre, secretary, Michigan State Board of Registration in Medicine, reports the written examination held in Ann Arbor, June 7-8, 1933. The examination covered 9 subjects and included 60 questions. An average of 75 per cent was required to pass. One hundred and twenty-six candidates were examined, all of whom passed. The following schools were represented:

PASSED

School	Year Grad.	Per Cent
Yale University School of Medicine	(1932)	84.9
Howard University College of Medicine	(1931)	83.9*
Loyola University School of Medicine	(1933)	87
Northwestern University Medical School	(1933) 80.9, 83.2,†	85.7
University of Michigan Medical School	(1931)	86.8,
(1932) 83.2,* 85.9, 86,* 87.1,* (1933) 80,* 81.2,* 81.3,* 81.4,* 81.4,* 82.2,* 82.4,* 82.5,* 82.5,* 82.5,* 82.6,* 82.7,* 82.7,* 82.7,* 82.7,* 82.8,* 82.8,* 82.8,* 82.9,* 82.9,* 82.9,* 83.1,* 83.1,* 83.2,* 83.3,* 83.3,* 83.3,* 83.3,* 83.4,* 83.5,* 83.5,* 83.5,* 83.6,* 83.6,* 83.6,* 83.7,* 83.7,* 83.8,* 83.8,* 83.9,* 83.9,* 83.9,* 83.9,* 84,* 84,* 84,* 84,* 84.1,* 84.1,* 84.1,* 84.2,* 84.2,* 84.2,* 84.2,* 84.2,* 84.2,* 84.3,* 84.3,* 84.3,* 84.4,* 84.4,* 84.4,* 84.4,* 84.5,* 84.5,* 84.5,* 84.5,* 84.6,* 84.6,* 84.6,* 84.6,* 84.7,* 84.8,* 84.9,* 84.9,* 84.9,* 84.9,* 85,* 85.1,* 85.1,* 85.1,* 85.1,* 85.1,* 85.1,* 85.1,* 85.1,* 85.2,* 85.3,* 85.3,* 85.3,* 85.3,* 85.4,* 85.4,* 85.5,* 85.8,* 85.8,* 85.8,* 85.9,* 85.9,* 85.9,* 86,* 86.2,* 86.2,* 86.6,* 86.6,* 86.6,* 86.8,* 86.9,* 87.4*		
St. Louis University of Medicine	(1932)	84.5
University of Buffalo School of Medicine	(1930)	86.6*
Western Reserve University School of Medicine	(1933)	86.4*
Temple University School of Medicine	(1932)	84.8
University of Western Ontario Medical School	(1933)	84.5*
85.8,* 85.9*		
McGill University Faculty of Medicine	(1926)	83.1

* License withheld.

† This applicant has received an M.B. degree and will receive an M.D. degree on completion of internship. License withheld.

Michigan June Examination at Detroit

Dr. J. Earl McIntyre, secretary, Michigan State Board of Registration in Medicine, reports the written examination held in Detroit, June 14-15, 1933. The examination covered 9 subjects and included 60 questions. An average of 75 per cent was required to pass. Fifty-eight candidates were examined, all of whom passed. The following schools were represented:

PASSED

School	Year Grad.	Per Cent
Loyola University School of Medicine	(1932)	82.8,
(1933) 83.3, 83.4,* 83.6,* 84.5,* 84.8, 85.1*		
Northwestern University Medical School	(1933)	84.5
Rush Medical College	(1932) 83.7, (1933)	85.8
Sch. of Med. of the Division of the Biological Sciences	(1932)	87.3†
Harvard University Medical School	(1932)	81.9
Detroit College of Medicine and Surgery	(1933)	79.6*
80,* 80.5,* 80.6,* 80.8,* 81.7,* 82.3,* 82.4,* 82.6,* 82.6,* 82.9,* 82.9,* 83,* 83.1,* 83.1,* 83.2, 83.5,* 83.6, 83.6,* 83.7,* 83.9,† 83.9,* 83.9,* 84.1,* 84.1,* 84.1,* 84.3,* 84.4,* 84.4,* 84.6, 84.7,* 85,* 85.3,* 85.4,* 85.4,* 85.6,* 85.8,* 86,* 86,* 86.1,* 86.3,* 87.4,* 88.1*		
Cornell University Medical College	(1931)	88.3
Baylor University College of Medicine	(1929)	82.7†

* This applicant has completed his medical course and will receive his M.D. degree on completion of internship. License withheld.

† License withheld.

Book Notices

Surgical Anatomy. By Grant Massie, M.B., M.S., F.R.C.S., Assistant Surgeon, Guy's Hospital. Second edition. Cloth. Price, $6. Pp. 458, with 147 illustrations. Philadelphia: Lea & Febiger, 1933.

In order to help in the remembrance of anatomic facts, the author has correlated them with their clinical application. The old nomenclature is retained, but the new is included. He considers the various regions of the body, taking up their characteristic anatomic points along with their application or importance. These regions are well described and include the female and male pelvis. The newer material includes injuries of the carpus, infections of the hand, the surgical approach to some long bones, and the autonomic nervous system. The section on the sympathetic nervous system is preeminently clear and concise, with a correlation of the anatomic facts to their surgical application. The illustrations, while not particularly numerous for this type of work, are unusually well chosen. Their value in many instances is increased by the artist through overemphasis on certain parts. This work throughout shows the original teachings of the author and the result of mature experience. For use by the advanced student or the practitioner it may be considered an excellent textbook on surgical anatomy.

Die Differentialdiagnose der Bauchorkrankungen: Eine neuartige Darstellung auf Grund der konstitutionellen Sensibilitätsunterschiede der klinischen und Röntgenuntersuchung. Von Dr. med. A. Voegeli. Paper. Price, 22.75 marks. Pp. 320, with 185 illustrations. Stuttgart/Leipzig: Hippokrates-Verlag G. m. b. H., 1933.

Not only perfection of various specialties but also a correlation and coordination of them are essential for real progress in medicine. A proper synthesis of observations is a conditio sine qua non for a correct diagnosis. Such considerations induced the author to form a link between the internist or surgeon on the one side and the roentgenologist on the other by offering the differential diagnosis of abdominal conditions from the clinical and radiologic points of view. One is impressed with the compact, simple and understandable presentation of the subject. The author outlines proper procedures to be employed in routine examination. The first few chapters are devoted to a careful analysis of pain and functional disturbances, such as nausea, vomiting, hematemesis, diarrhea, constipation, occult bleeding, meteorism and jaundice. Then follows a consideration of the history of the patient, with special attention to hereditary factors; also a concise description of simple chemical laboratory methods. The physical examination is outlined rather superficially and briefly. The greatest part of the book is devoted to roentgenologic observations and their correct interpretation. As the book is designed primarily for the general practitioner, only a short space is allotted to description of the technic, while roentgenographic observations in various diseases of the gastro-intestinal tract are described in a comprehensive yet thorough manner. The book is full of useful diagnostic points and illustrated with a large number of well reproduced roentgenograms. It can be highly recommended to every physician who wishes to familiarize himself with the roentgenologic aspect of abdominal conditions.

Investigations into the Oscillatory Method for Determination of Systolic Blood Pressure, Its Principles and Some Errors Involved in Its Use. By A. Eldahl. Paper. Pp. 168, with 75 illustrations. Copenhagen: Levin & Munksgaard, 1933.

This scholarly monograph is a clear and logical exposition of the fascinating study of the various oscillatory methods now employed in the determination of the systolic arterial tension. All the known advantages and disadvantages of the various methods are thoroughly discussed, and carefully controlled experimental evidence is presented to justify any and all conclusions. The author has covered this field most comprehensively and is conservative in his conclusions; nowhere does his obvious enthusiasm lead him astray from logical thought. A number of important conclusions are demonstrated and confirmed. Among the observations of greatest clinical interest are the following: 1. The indirectly measured liquid pressures measured by means of cuff and manometer are equal to the

maximum pressure existing in the vascular section concerned when the vessel is occluded. 2. The thickness of the muscular layer on the extremity is without significance to the determination. 3. The normal brachial artery has a compressing pressure of about 10 mm. of mercury and thus the indirectly determined blood pressure is approximately 10 mm. higher than that found on direct determination. 4. The compressing pressure of sclerosed arteries has never been found to exceed 20 mm. of mercury and therefore errors due to stiffening of the arterial walls are almost negligible. The author points out that there are really two systolic pressures to be considered: one occurring when the vessel is occluded (as in ordinary sphygmomanometry), or the end pressure, and one existing when the flow of blood passes unobstructed through the vessel, or the lateral pressure against the arterial walls. Clinically the former is usually determined, while the latter is physiologically more correct. The difference between the two, however, is not significant. Unfortunately, the oscillatory method of determination of the arterial tension is far more satisfactory for the measurement of the systolic than of the diastolic tension. The importance and vital significance of the diastolic tension is thus greatly underemphasized in oscillatory studies. From the point of view of the pathologic physiology of disturbed arterial tension, study of the diastolic tension is of the utmost importance. The author's exposition is clear and concise. The typography and graphs are excellent.

An Introduction to Dermatology. By Richard L. Sutton, M.D., Sc.D., LL.D., Professor of Diseases of the Skin, University of Kansas School of Medicine, and Richard L. Sutton, Jr., A.M., M.D., L.R.C.P., Assistant in Dermatology, University of Kansas School of Medicine. Second edition. Cloth. Price, $5. Pp. 566, with 190 illustrations. St. Louis: C. V. Mosby Company, 1933.

A second edition appearing within a few months after the first should be sufficient evidence that the authors have been successful in gaging the need of a short and concise textbook in their chosen field. The purpose of this book has been to simplify dermatology for the student and practitioner by omission of much of the theoretical and controversial material that clogs the larger books. References have been omitted, but all the more important specialists who have contributed to the picture of present-day dermatology will be pleased to find their names mentioned in this volume and credit given for their work. The material is of course chiefly a condensation of the senior Dr. Sutton's popular textbook, but enough skill and judgment have been used in the selection of the material to give the impress of an original work. The authors are to be congratulated on the result.

Los gaz toxiques: Physiologie, toxicologie, protection, thérapeutique. Par L. Dautrebande, professeur à la Faculté de médecine de l'Université de Liége. Paper. Price, 60 francs. Pp. 371, with 125 illustrations. Paris: Masson & Cie, 1933.

This engaging publication devoted to toxic gases is not entirely limited to true gases but includes comment on such substances as mercury, antimony and phosphorus, which may give rise to vapors simulating gases. The best portion is found in the 124 pages devoted to the physiology and the physiopathology of respiration. Among others, sections are devoted to fatigue, cyanosis, the rôle of the carotid sinus, reflex action of irritants in relation to respiration, and Cheyne-Stokes breathing as produced by various internal and external factors. The second general division, in which individual toxic substances are described, omits many intoxicants that might well have been included. For example, the large number of volatile solvents, many of which are toxic, are covered in approximately one page. To this extent the value of the book may be diminished for industrial physicians in the United States confronted with problems of toxicity in connection with a far greater variety of gases and vapors than are covered in this publication. On the other hand, chapters devoted to treatment are especially helpful, as similar publications in the United States have provided only meager discussions of this aspect of toxic gases. The field of usefulness of the book is widespread. Primarily of value to the industrial hygienist and industrial physician, it proffers helpfulness to the general hospital staff, the pharmacologist, the physiologist and the general practitioner in industrial communities. The contents are too technical to make the book usable by the layman interested in industrial hazards. Something would have been gained if an index had been included instead of the table of contents, which is found at the end. This book is destined to become a much used volume of reference by workers engaged in studies of intoxicants entering the body through the portal of the respiratory tract.

Atlas of Pathological Anatomy. Volume I. Compiled by E. K. Martin, M.S., F.R.C.S. Issued Under the Direction of the Editorial Committee of the British Journal of Surgery. Supplement to the British Journal of Surgery. Cloth. Price, $15. Pp. 489, with illustrations. Baltimore: William Wood & Company, 1930.

This volume comprises the drawings published as a supplement to the *British Journal of Surgery* during the five years 1926 to 1930. The material for the atlas has been selected from the Hunterian Museum to illustrate not only the more common varieties of morbid conditions but also as far as possible the natural history of disease and the correlation of physical signs with their pathologic causes. For this reason the arrangement is chiefly clinical. Whenever possible, drawings were made from specimens removed by operation. A certain disadvantage of this principle lies in incompleteness of the resulting picture of the disease. The editors intend to continue the publication of the atlas until it includes all subjects that can profitably be illustrated by drawings of museum specimens, without attempting a reproduction of rarities and curiosities of surgical practice. The book consists of chapters devoted to bone tumors, lesions of the stomach and duodenum, breast tumors, renal conditions including neoplasms, and gallbladder diseases. Each chapter consists of a concise review of the most common lesions, followed by marvelous photographic reproductions and superb colored plates, accompanied by short histories. No illustration, however good, can take the place of the actual inspection of specimens, but the study of beautiful illustrations as presented in this volume will both stimulate and assist in such examinations. In recent years it has been the custom to rely so much on a report from a skilled histologist that the information to be gained by a naked-eye inspection at the time of an operation has often been completely neglected. A publication such as this atlas should arouse in the medical fraternity a renewed interest in morbid anatomy.

Les traumatismes formés du rachis. Par G. Michel, professeur de clinique chirurgicale, M. Mutel, professeur agrégé, et R. Rousseaux, chirurgien des hôpitaux, à la Faculté de médecine de Nancy. Paper. Price, 50 francs. Pp. 330, with 83 illustrations. Paris: Masson & Cie, 1933.

Knowledge of injury to the vertebrae has changed remarkably during the last few years. Roentgenographic examination is one of the important methods employed. It is remarkable how frequently fractures of the vertebrae have been overlooked in the past. The authors discuss the anatomy and physiology of the vertebrae individually and collectively. They discuss the mechanics of the spine and the movements, describe the examination of the wounded, and discuss complications of injury to the spinal cord. They consider also fractures and dislocations of the cervical vertebrae, fractures of the thoracic and lumbar vertebrae and dislocations. There is an interesting chapter on traumatic spondylolisthesis. Fractures of various portions of the individual vertebra are described, then traumatic lesions of the intervertebral disks and finally medicolegal considerations, including camptocormia. Many of the illustrations are highly instructive.

Fisiopatología del metabolismo basal. Por Dr. Francisco Grecco Mozo. Prólogo del Dr. Gregorio Marañón. Paper. Price, 15 pesetas. Pp. 164, with 20 illustrations. Madrid: Pueyo, 1933.

With the exception of the work by Castex, this is the only volume of its kind in the Spanish language. It is divided into three parts: The first is concerned with methods and apparatus used for metabolism determinations. The second discusses the physiologic variations encountered in metabolism. The third deals with metabolism in certain pathologic conditions: disorders of the thyroid gland, certain types of obesity, severe diabetes mellitus, rheumatism, nephritis and respiratory infections, particularly tuberculosis. An exceptionally well prepared bibliography and the author's personal observations not only make this monograph interesting reading but confirm the scientific principles underlying metabolism.

Medicolegal

Workmen's Compensation Acts: Cerebral Hemorrhage an Accidental Injury Arising in the Course of Employment.—The employee, while engaged in the performance of his duties in carrying on quarrying operations for the defendant company, suffered a cerebral hemorrhage, which resulted in partial paralysis. The trial court sustained an order of the compensation commission disallowing compensation, and the employee appealed to the Court of Appeals of Maryland. On the morning of July 1, an intensely hot and stuffy day, the employee in the course of his work descended several times into the quarry and arranged mud caps on charges of dynamite to be exploded. After his last trip he said that he felt hot, sat down for a while and fanned himself, then started toward the car, where he "usually went." Shortly thereafter he was found lying on the ground. He was taken to the office of a physician and from there to his home. Nine or ten days later he was examined by two physicians, who diagnosed his injury as cerebral hemorrhage. Another physician, who saw him on the day of the accident after he had been taken home, testified that the employee was partially paralyzed and unconscious. Later the employee was removed to a hospital. A hole was made in the left temporal region of his skull, a needle introduced into the skull, and the blood which had collected there partially drained. As a result of that operation and subsequent operations, the condition of the employee slowly improved. One physician attributed the injury suffered by the employee to the effect of the extreme "temperature conditions" under which he was working on one suffering from high blood pressure. He characterized the conditions as "abnormal," and the day as one of the "hottest he had ever experienced." Another physician attributed the injury to the extreme heat and to the inhalation of gases released by dynamite explosions. There was testimony that the employee's high blood pressure alone would not have produced the injury had he not been subjected to the extreme temperature conditions under which he worked. While, said the Court of Appeals, according to the opinions of the physicians, heat was a contributing cause of the injury, the injury was not classified by them as heat prostration, heat stroke or sun stroke, but as a hemiplegic cerebral hemorrhage. The word "accident," in its ordinary and usual implication, is associated with ideas of trauma and involves to a degree at least elements of force, violence and surprise. But in workmen's compensation laws its meaning has been expanded to include any mischance resulting in physical injury to the bodily tissues produced by some unusual and extraordinary condition or happening in the employment. It has been interpreted to include such untoward occurrences as the rupture of an aneurysm, pulmonary and cerebral hemorrhages, hernia, infection and heart dilatation arising out of some unusual or extraordinary condition in the employment, even where the injury was due in part to preexisting disease or physical abnormality in the employee. The word "accident" or "accidental" is usually considered in connection with the phrase "arising out of," and where it seems clear that the injury arose "out of the employment," the tendency of the courts has been to give the word "accidental" a liberal construction in harmony with the general intent of the act so as to find the injury compensable. As a result of that policy, such injury as cerebral hemorrhage when occasioned by some unusual and extraordinary condition in the employment is by the great weight of authority held to be accidental in its nature. The conditions under which the employee worked were peculiar to the employment and not such as affected the public generally in that neighborhood. When those facts are considered in connection with the medical testimony, they furnish legally sufficient evidence to permit the inference that the employee's injury was caused by unusual and extraordinary conditions in the employment, that it was accidental in its nature, and that it arose out of and in the course of the employment. The judgment of the trial court, therefore, affirming the order of the industrial commission disallowing compensation, was reversed and the case remanded for a new trial.—*Schemmel v. T. B. Gatch & Sons Contracting & Bldg. Co. (Md.), 166 A. 39.*

Workmen's Compensation Act: Abdominal Tumor Attributed to Trauma.—The employee, while using a "breast auger" in boring holes incident to coal mining, experienced a pain in his abdomen, July 22 or 23, 1931. He testified: "I was putting my weight, pushing against my abdomen and something stung me like a pin stuck in there." He worked two days thereafter but was then forced to quit. He consulted the company physician early in August, 1931, who discovered a tumor mass near the umbilicus and sent the employee to a hospital. There he was operated on and the tumor removed. The industrial commissioner refused to award compensation and the employee appealed to the Supreme Court of Appeals of West Virginia. The company physician testified that when he examined the employee in August, 1931, he found a "tumor mass of the abdomen," but there was no outside evidence of any injury, and he doubted whether the disability was the result of the injury complained of. The operating physician testified that the muscles of the abdomen had evidently been traumatized by using the auger to such an extent that the employee had developed a "tumor mass" of the abdominal muscles. He testified that a pathologic analysis of the tumor disclosed a "low grade of infection of the fascia and abdominal muscles due to trauma," and in his opinion there was no question but that the tumor was caused by the trauma. There was nothing in the record, said the Supreme Court of Appeals, to contradict affirmatively the clear and definite statements of the operating physician. The evidence, therefore, in the opinion of the court established the fact that the employee's disability was a result of an injury received by him in the course of his employment. The case was remanded for an award to be made in compliance with the workmen's compensation act.—*Epperson v. State Compensation Com'r (W. Va.), 169 S. E. 168.*

Insurance: Death "from Illness or Disease of Any Kind."—The appellee was the beneficiary of a life insurance policy issued by the appellant company on the life of her husband. The policy contained a double indemnity benefit clause, which was not to apply if the insured's death resulted "from physical or mental infirmity; or directly or indirectly from illness or disease of any kind." An automobile, which the insured was driving, ran into a ditch. The insured was found in an unconscious condition. Stimulants were given and artificial respiration attempted by two physicians but the insured died about two hours later without having regained consciousness. An autopsy disclosed that the insured had arteriosclerosis and enlargement of the heart. Experts for the beneficiary testified that in their opinion the death of the insured had resulted from concussion of the brain caused by blows on the head. Experts for the insurance company, on the other hand, testified that the death of the insured had been caused by a heart attack due to the failure of the coronary artery to supply sufficient blood to the left ventricle. The trial court gave judgment for the beneficiary and the insurance company appealed to the United States circuit court of appeals, tenth circuit. Where the matter under inquiry is one on which a witness possesses expert knowledge which will be of aid to the jury in reaching a correct solution of the issues, and is therefore properly the subject of expert testimony, it is no objection, said the circuit court of appeals, that the opinion elicited from the expert is on an issue or point to be decided by the jury. A medical expert, after stating the facts, or assuming the facts on which his opinion is founded in case the question is hypothetical, may give his opinion as to the cause of death. The district court did not err, therefore, in admitting the testimony of the experts for the beneficiary as to the cause of death.

The district court instructed the jury that if they found that the insured experienced an attack at the time of his injury which was new or unusual with him, arising from some sudden or unexpected derangement of the system, though it produced unconsciousness, it would not be a disease or bodily infirmity within the meaning of the insurance policy and would not exempt the insurance company from liability in this action. This instruction, said the circuit court of appeals, excludes from the term disease or bodily infirmity, a physical condition that was either sudden or unexpected, and which manifested itself in an attack which was either new or unusual. Diseases

of the heart are frequently insidious. Many persons die from a disease of the heart without being cognizant of such infirmity. In such cases the condition is unknown and unexpected, and the attack is new, yet, continued the court, it is clearly an existing physical infirmity or disease. The instruction in effect told the jury that, even though they should find that the insured had suffered a heart attack at the time of the accident, if he had not theretofore been subject to such attacks and was not aware of the condition of his coronary artery and heart, then such condition would not be a bodily infirmity or disease within the meaning of the policy. The evidence showed that the insured had a serious ailment of the coronary artery and heart. Under the facts, such ailment may have rendered the insured unconscious and caused him to drive off the road and strike his head on some portion of the automobile. If such were the facts, the heart ailment was a contributing cause to his death, although the primary cause may have been concussion of the brain. Under the facts, the blows on the head may have been insufficient to have caused his death, and the insured may have died from a heart attack. If such were the facts, the heart ailment was the primary cause of death. The testimony showed that the insured had not theretofore suffered a heart attack and was unaware of the condition of his heart and coronary artery. Such being the facts, the instruction excluded those conditions which were clearly diseases or bodily infirmities, both as a contributing cause and as a primary cause of the insured's death. The instruction was therefore erroneous and prejudicial. The judgment of the district court in favor of the beneficiary was reversed and the case remanded for a new trial.—*New York Life Ins. Co. v. Doerksen, 64 Fed. (2d) 240.*

Silicosis: Liability of Employer in West Virginia.—In the course of his employment, an employee contracted silicosis and died. His widow instituted a common law suit against the employer for the alleged wrongful death of her husband. The trial court overruled a demurrer to the declaration, interposed by the employer, who appealed to the Supreme Court of Appeals of West Virginia.

The gravamen of the employer's defense was that the workmen's compensation act of West Virginia relieves subscribing employers from liability to respond in damages for the injury or death of an employee, however occurring, regardless of whether or not there is involved a compensable injury. To justify this contention, the employer referred to section 2516 of the workmen's compensation act, which reads in part:

> Any employer subject to this chapter who shall elect to pay into the workmen's compensation fund the premiums provided by this chapter shall not be liable to respond in damages at common law or by statute for the injury or death of any employee however occurring. . . .

Under the workmen's compensation act, said the court, an employer is liable to employees for "personal injuries" or death sustained in the course of and resulting from employment. If the injury is due to a disease, that injury is compensable only if the disease is attributable to an exposure or injury at a definite time. In the present case, the court continued, the disease is attributable, not to exposure or injury at a definite time, but to exposure extending through a long course of employment. It constitutes an occupational disease for which no compensation is provided by the act. That being so, the question to be determined is: Does the exempting clause of the workmen's compensation act, above quoted, exempt an employer who is protected by the act from liability for an injury to an employee arising from disease contracted in the course of employment through negligence of the employer, though the injury be not compensable under the act? At common law, said the court, an employer is liable in damages for the employee's traumatic injury and for disease contracted by the employee, where the injury or disease is caused by negligence of the employer. No liability attaches for occupational disease not produced by negligence. By the workmen's compensation act, compensation is provided for an employee who suffers a traumatic injury and where he suffers disease attributable to a specific and definite mishap. This burden is borne by industry as a whole and is met by the premiums paid by the employers. In return, the employers are relieved from the burden of common law actions in such matters. The only element of common law liability which remains is predicated on disease occasioned to employees by the negligence of employers. Not only would constrained construction of the statutory exemption of liability result in precluding employees from maintaining damage actions for disease suffered on account of negligence of employers, said the court, but immunity of employers from such liability would tend to foster negligence of a kind likely to produce disease. It must not be held that such right of action is taken from employees unless the statutory language is clear and concise and not subject to any other reasonable construction. It is difficult, continued the court, to perceive a satisfactory and reasonable basis for exemption of employers from liability for disease caused by their negligence, such disease being not compensable under the workmen's compensation act. Furthermore, under the workmen's compensation acts of most of the states, employers are not exempt from liability for damages in noncompensable cases. Thus to construe the exempting clause in the West Virginia act as not exempting employers from liability for damages in noncompensable cases would place such employers on the same footing as employers in the other states, and such construction would involve no special nor exceptional hardship. The phraseology of the exempting clause, continued the court, lends itself to the construction that the legislature intended not to exempt employers from liability for noncompensable disease caused by the negligence of the employer or from death resulting from such disease. This clause, the court pointed out, relieves an employer from liability for "injury or death" of an employee, provided "the injured employee" has remained in the employer's service with notice that the employer was a subscriber to the workmen's compensation fund. Note the language "injury or death" and "injured employee," said the court. The legislature in making provision in the act for injury to workmen was giving primary consideration to injuries other than disease. The phrase "injury or death" and "injured employee" as used in the exempting clause must therefore be taken to mean an employee who had been hurt, or sustained injury by reason of a trauma. It is from liability for such a traumatic injury that the clause under discussion exempts an employer. The contention of the employer, therefore, was in the opinion of the Supreme Court of Appeals untenable and the action of the trial court in overruling the employer's demurrer was affirmed.—*Jones v. Rinehart and Dennis Co. (W. Va.), 168 S. E. 482.*

Privileged Communications: No Inference to Be Drawn from Failure of Patient to Waive Privilege—Section 1536, Code of Mississippi, 1930, declares that all communications made to a physician by a patient are privileged, and that only a patient may waive this privilege. No inference may be drawn, said the Supreme Court of Mississippi, unfavorable to a patient because he fails to waive this privilege. If this were permitted, the statutory privilege accorded the patient would be nullified. In *Pennsylvania R. Co.* v. *Durkee* (C. C. A.) 147 F. 99, 8 Ann. Cas. 790, the court said: "To hold that, because the patient does not waive or abandon the prohibition, inferences adverse to his side of the controversy may be drawn by the jury, would be to fritter away the protection it was intended to afford. When it is the legal right of a party not to have some specific piece of testimony marshaled against him, he may exercise that right without making it the subject of comment for the jury."—*Hobson v. McLeod (Miss.), 147 So. 778.*

Society Proceedings

COMING MEETINGS

American Orthopsychiatric Association, Chicago, Feb. 22-24. Dr. George S. Stevenson, 450 Seventh Avenue, New York, Secretary.

Annual Congress on Medical Education and Licensure, Chicago, February 12-13. Dr. W. D. Cutter, 535 North Dearborn Street, Chicago, Secretary.

Tri-States Medical Association of the Carolinas and Virginia, Charlottesville, Va., Feb. 12-14. Dr. James M. Northington, 804 Professional Building, Charlotte, N. C., Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

46: 705-940 (Oct.) 1933

*Treatment of Respiratory Failure in Acute Epidemic Poliomyelitis. M. B. Brahdy, Mount Vernon, N. Y., and M. Lenarsky, New York.—p. 705.

Some Reflex Changes in Poliomyelitis. J. A. Toomey, Cleveland.—p. 730.

Practical Application of Some Lessons of Self Selection of Diet Study to the Feeding of Children in Hospitals. Clara M. Davis, Chicago.—p. 743.

*Diet of Tuberculous and Nontuberculous Children: Effect of Increased Supply of Vitamin B Concentrate and Minerals. P. D. Crimm, I. J. Raphael and Louise F. Schmitt, Evansville, Ind.—p. 751.

Vegetable Feeding in the Young Infant: Influence on Gastro-Intestinal Motility and Mineral Retention. F. W. Schlutz, Minerva Morse and Helen Oldham, Chicago.—p. 787.

Rickets and Hyperparathyroidism. B. Hamilton and C. Schwartz, Chicago.—p. 775.

Effect of Lactose on Rickets in Rats. Gertrude Sunderlin, Lafayette, Ind.—p. 786.

*Sensitive Test for Subclinical Scurvy in Man. G. Dalldorf, Valhalla, N. Y.—p. 794.

Hemangio-Endothelioma of the Liver in Infancy: Case Report and Review of the Literature. R. H. Kunstadter, Chicago.—p. 803.

Treatment of Respiratory Failure in Acute Poliomyelitis.—Brahdy and Lenarsky state that the timely administration of sedatives and parenteral injections of fluid, laxatives or other medication in respiratory embarrassment in epidemic poliomyelitis will avoid interference with the artificial respiration. Every effort should be made to prevent a rise in the temperature of the air inside the respirator. The paralyzed skeletal muscles should receive immediate attention. In some instances, removal of the patient from the respirator is not a simple matter. The simplest method is to lower the pressure gradually and to permit the motor to run. The patient then breathes of his own accord inside the chamber. Until the apparatus, the technic of treatment or both are improved the authors do not advise the treatment of patients with slight or moderate respiratory distress in the respirator. Repeated small doses of sedatives and continued reassurances will make such patients comfortable and enable them to rest. Their twelve patients with bulbar lesions, apparently associated with involvement of the vital centers, all died. Among the patients with only spinal lesions, twelve died in the respirator and four within six weeks after treatment. One subsequent death five months after treatment was due to pneumonia. Another death, which occurred seven months after the patient's discharge, was due to pneumothorax and pneumonia. After seven months, twelve of the authors' thirty-four patients with spinal lesions are alive. This does not compare favorably with the results in cases of spinal lesions reported by Wilson. He advised that the respirator be used early, long before the appearance of cyanosis, before there is evidence of marked dyspnea and at the first evidence of the existence of any paralysis of the respiratory muscles. The only other series of cases reported is that by Shaw and his associates. They treated ten patients with paralysis of the diaphragm and intercostal muscles, with three deaths. Five other patients with bulbar lesions all died. The authors point out that the Drinker respirator is a notable advance in the treatment of respiratory failure in poliomyelitis.

Effect of Vitamin B Diet on Tuberculous Children.—Crimm and his associates divided forty tuberculous and nontuberculous children of approximately normal weight, ranging in age from 3 to 17 years, into four groups, which were designated as the control, mineral mixture, vitamin B and special cereal groups. The daily administration of a special cereal mixture composed of 53 per cent of farina, 18 per cent of oatmeal, 10 per cent of cornmeal, 15 per cent of wheat germ, 2 per cent of bonemeal, 1 per cent of dried brewers' yeast and 1 per cent of alfalfa leaf meal, which supplied in liberal amounts calcium, phosphorus, iron, copper and vitamins A, B, E and G in the diet of the group fed this mixture, was accompanied by an increase in weight and in hemoglobin over the controls. The serum calcium rose to the highest concentration in the group fed the special cereal. The serum calcium and phosphorus rose to higher concentrations in the groups fed the mineral mixture, the vitamin B complex concentrate and the special cereal than in the control group. The data suggest that the vitamin B content of the special cereal was largely responsible for the increased gain in weight. The mineral content of the special cereal was apparently responsible for the increase in hemoglobin. The addition of vitamin B concentrate or of minerals to a regular diet does not seem to be as satisfactory as the feeding of a combination of the two in the form of a special cereal, which contains in addition vitamins A and E.

Sensitive Test for Subclinical Scurvy in Man.—The studies of Dalldorf indicate that the capillary resistance test, as estimated by Hecht's method, may be used as a criterion of subclinical scurvy. Changes in values in an individual case or differences in average values for groups are of diagnostic significance. In a group of children from poor homes the incidence of subclinical scurvy, as estimated by this method, was found to be between 35 and 66 per cent.

American Journal of Surgery, New York

22: 1-180 (Oct.) 1933

Diseases of the Vulva. A. Stein, New York.—p. 1.

Value of Roentgen Ray in Gynecology (Eighth Communication): Additional Studies of Cornual Sphincter, Physiologic Contraction and Relaxation of Uterine Components and Special Use of Small Quantities of Opaque Mediums. J. Jarcho, New York.—p. 13.

Uterine Cancer and Its Treatment by Radium. A. P. Leighton, Jr., Portland, Maine.—p. 36.

Management of Uterine Hemorrhages. L. O. Baumgardner, Cleveland.—p. 42.

Cholecystectomy and Cholecystostomy in Acute Suppurative and Gangrenous Cholecystitis. G. H. Pratt, Philadelphia.—p. 46.

Gallbladder Disease: One Thousand End-Results. R. S. Fowler, Brooklyn.—p. 53.

The X-Ray Gallbladder: Surgical Opinion. V. G. Burden, Philadelphia.—p. 60.

Carcinoma of the Colon. F. H. Lahey, Boston.—p. 64.

Unusual Condition Simulating Acute Appendicitis: Vincent's Angina. E. R. Easton, New York.—p. 74.

*Roentgenologic Visualization of Peripheral Nerves: Neurography in Vivo. M. Saito, K. Kamizawa and S. Kato, Nagoya, Japan.—p. 78.

*Coramine in Denarcotization and Resuscitation: Preliminary Report. P. M. Wood, New York.—p. 86.

Treatment of Purpura Hemorrhagica: Report of Twenty-Two Cases. E. R. Marzullo, Brooklyn.—p. 92.

Lymphogranulomatosis Venerea. W. E. Coutts, J. Martini Herrera and F. Landa Perroni, Santiago, Chile.—p. 96.

Choice of Procedure in Cases of Prostatic Obstruction. N. P. Rathbun, Brooklyn.—p. 106.

*Spontaneous Perforation of Bladder Secondary to Osteomyelitis of Pelvis. A. B. Hepler and C. F. Eikenbary, Seattle.—p. 113.

Anomalies of Lumbosacral Spine. E. LeCocq, Tacoma, Wash.—p. 118.

Preparation of Dextrose and Saline Solutions and Apparatus for Intravenous and Subcutaneous Use. S. A. Thompson, New York.—p. 127.

Visualization of Peripheral Nerves.—Saito and his associates visualized roentgenologically the peripheral nerves in nine patients by means of injection of the emulsion of iodized poppy-seed oil into the intraneural or interneural sphere and it was ascertained that no unfavorable symptoms followed during and after the injection (pain, fever, neuralgia or paralysis). By intraneural injection the emulsion will diffuse toward the center of the part, while in the case of interneural injection it will diffuse toward the periphery. In the case of intraneural injection the resorption of the injected emulsion will take much longer than in the case of interneural injection. By these methods the authors were successful not only in neurography but in epidural and extradural myelography when the emulsion was injected through the sacral hiatus. They believe that by the foregoing methods some particular diseases of the nerves, such as neuritis, the amputation of nerves, neurinoma and spinal tumor, can be examined.

Coramine in Denarcotization and Resuscitation.—Wood administered 2 cc. of a 25 per cent solution of pyridine beta-carbonic acid (coramine), immediately on return to bed and

according to special indications, to eighty-two patients in whom tribrom-ethanol was used as the basal anesthetic. From his observations in these cases he concludes that: 1. The 25 per cent solution of pyridine betacarbonic acid is a definite stimulant to respiration and circulation depressed by tribrom-ethanol, solution of procaine (novol) or surgical shock. 2. The toxicity of the 25 per cent solution is low, and large repeated doses may be employed if the necessity exists. The author illustrates this in one of his cases, in which 28 cc. was given during a period of sixteen hours with apparently excellent results. Further, in this series there was no depression after the immediate stimulation. 3. The use of the solution is suggested in all cases in which early recovery from anesthesia, especially the tribrom-ethanol-gas-ether sequence, is desired.

Spontaneous Perforation of the Bladder.—Hepler and Eikenbary report two cases of spontaneous perforation by sequestrums with the formation of osteovesical fistulas and displacement of the bladder secondary to osteomyelitis of the pelvis in which attention was called to the complication by persistent pyuria, and two cases without perforation in which there were no urinary symptoms. In all four cases the marked displacement of the bladder was due to the intrapelvic intrusion of an enormous involucrum. The authors feel that the complication is fairly frequent from the fact that it was present in each of the four cases of osteomyelitis of the pelvis that they have had the opportunity to examine. The absence of signs and symptoms referable to the urinary tract accounts for the failure to consider this possible urinary complication. Even in the two cases with perforation there were no subjective symptoms, and examination was undertaken because of persistent pyuria. The clinical significance of the condition lies in the possibility of perforation of the bladder, which occurred in two cases and which might be assumed to be impending in the others, in which the engendering factors were the same. This should be an additional reason for early and thorough drainage of all suppurative processes of the hip joint or the pelvic bones. The operation for osteovesical fistula is at times difficult because of the firm adhesions of the contiguous portion of the bladder to the involucrum and the infiltration about the fistula offering danger of laceration. Healing is rapid and the operative results are good. Once corrected the condition does not tend to recur, provided adequate drainage of the osteomyelitis is established.

American Journal of Syphilis, St. Louis

17: 449-606 (Oct.) 1933

Report on Instruction Regarding Syphilis in American Medical Schools. M. J. Exner, New York.—p. 449.
Reinfection in Syphilis: Case with Unusually Complete History. A. B. Cannon, New York.—p. 459.
Congenital Syphilis: Advantage of Early Treatment as Judged by the Wassermann Test. I. Chargin and M. Umansky, New York.—p. 468.
*Meaning and Reliability of Umbilical Cord Wassermann Tests. J. Roby and P. A. Lembcke, Rochester, N. Y.—p. 473.
Congenital Syphilis from Blood Transfusion to Mother During Pregnancy. G. R. Williamson and R. A. Strong, New Orleans.—p. 484.
Third Generation Syphilis. W. M. Sams, Ann Arbor, Mich.—p. 492.
Syphilitic Origin of Elephantiasis of the Vulva. J. T. Witherspoon, New Orleans.—p. 499.
Fixed Dermatitis Due to Tryparsamide. H. M. Robinson, Baltimore.—p. 507.
*Agranulocytosis with Associated Skin Lesions, Following Arsenobenzene Therapy: Report of Case. E. K. Stratton, San Francisco.—p. 510.
Cellular Pathology of Experimental Syphilis as Studied by Supravital Method. R. S. Cunningham, H. J. Morgan, Edna H. Tompkins and S. Harris, Jr., Nashville, Tenn.—p. 515.
Effect of Trypan Blue on Experimental Syphilis in the Rabbit. H. J. Morgan, S. Harris, Jr., E. H. Tompkins and R. S. Cunningham, Nashville, Tenn.—p. 522.
Cultivation of Spirochaeta Pallida in Living Tissue Mediums. Clara C. Kast and J. A. Kolmer, Philadelphia.—p. 529.
One Successful Cultivation of Spirochaeta Pallida from Syphilitic Chancre of Rabbit. Clara C. Kast and J. A. Kolmer, Philadelphia.—p. 533.
Comparison of Sigma, Kahn and Hinton Tests. D. L. Belding and Julia G. Arrowood, Boston.—p. 539.
*Comparative Study of Müller's Conglobation Reaction in Syphilis with Wassermann Reaction and Another Precipitin Test. I. Chang, Shanghai, China.—p. 550.

Umbilical Cord Wassermann Tests.—Roby and Lembcke believe that umbilical cord Wassermann reactions reflect almost exactly the condition of the mother's blood at the time of labor. If the mother's blood is negative, the cord blood will be negative. If positive, the cord blood will be equally positive. The substance causing the Wassermann reaction passes out of the child's blood in most cases by the end of two months' time, leaving the child's blood frankly negative, provided the child actually does not have syphilis. If the child actually has syphilis, the Wassermann reaction, after a number of days and weeks, will remain as strongly positive as it was in the cord blood. The decreasing Wassermann reaction means that the child does not have syphilis and that treatment should be withheld. If treatment is instituted on these new-born children with positive cord blood, not too much credit should be given to the drug used. The authors are in accord with Dunham concerning the Wassermann reactions and also with Denham-White, Brahmarchari and Maity that the drug (sulpharsphenamine) may be regarded as one of the most innocuous at present in use, its lack of toxicity being most marked in comparison with its high efficacy.

Agranulocytosis Following Neoarsphenamine Therapy.—Stratton reports a case of granulocytopenia with ulcerations of the skin following neoarsphenamine therapy. There was a rapid recovery under injections of pentnucleotide and sodium thiosulphate by mouth. Arsenic medication (using a pentavalent instead of the trivalent compound) was resumed in thirty days without further reaction on the bone marrow. The author recommends that more frequent blood counts be made on patients undergoing antisyphilitic treatment, especially those reacting in any manner to arsenic therapy.

Müller's Conglobation Reaction in Syphilis.—Chang states that Müller's conglobation reaction is technically simple, is easy to read, and agrees in its results in 96 per cent of cases with the Wassermann reaction and the Kahn test. It is more sensitive than the Wassermann reaction and the Kahn test, but nonspecific reactions occasionally occur. Müller's conglobation reaction would be a good auxiliary to the Wassermann reaction. A negative Müller conglobation reaction would have more value in excluding syphilis than the Wassermann reaction or the Kahn test and a positive Müller conglobation reaction means presumably syphilis, but clinical evidence must not be neglected to establish the final diagnosis.

American Review of Tuberculosis, New York

28: 411-536 (Oct.) 1933

*Surgical Treatment of Tuberculous Cavities. K. Fischel, Duarte, Calif.—p. 411.
Ruptured Lung During Induction of Artificial Pneumothorax. A. A. Karan, Wallum Lake, R. I.—p. 429.
New Artificial Pneumothorax Technic. R. N. Perlstein and W. F. Leslie, Honolulu, Hawaii.—p. 437.
Oleothorax Apparatus. M. H. Joress, Boston.—p. 442.
Artificial Larynx in Treatment of Tuberculous Laryngitis. J. Head, Chicago.—p. 445.
Eradication of Chronic Tuberculous Middle Ear and Mastoid Disease in Tuberculosis Patient. I. Muskat, Indianapolis.—p. 447.
Antituberculosis Millinery. S. J. Maher, New Haven, Conn.—p. 453.
Critique of Atelectasis in Pulmonary Tuberculosis. G. E. Ehrenburg, Spivak, Colo.—p. 457.
Development of Pulmonary Silicotic Nodule in Experimental Animal. W. S. Lemon and G. M. Higgins, Rochester, Minn.—p. 470.
Treatment of Acute Forms of Pulmonary Tuberculosis. G. G. Ornstein and D. Ulmar, New York.—p. 484.
Tuberculosis Among Pupils of a Canadian School for Indians. L. G. Montgomery, Ninette, Manit., Canada.—p. 502.
Examination of the School Child for Tuberculosis in the Rural Community. D. R. Hastings, Minneapolis.—p. 516.
Dispensary Examination Versus School Examination in Discovering Tuberculosis in Children. E. Bridge and A. M. Stokes, Rochester, N. Y.—p. 522.
*Technic and Apparatus for Intrapleural Pneumolysis. J. W. Cutler, Philadelphia.—p. 528.

Surgical Treatment of Tuberculous Cavities.—Fischel states that the peripheral cavity presents a strict indication for immediate collapse. By the early use of pneumothorax, in infiltrations that do not retrogress in a short time, the formation of cavities and of adhesions may be prevented. The suspended cavity should be recognized and the distention of the cavity by adhesions and pneumothorax should be avoided. Phrenicectomy is applicable for the obliteration of cavities if and as soon as compression by pneumothorax proves unsuccessful. It can be used to great advantage in conjunction with incomplete pneumothorax or partial or total thoracoplasty. In

advanced pulmonary tuberculosis, phrenicectomy has a good hemostatic effect and is apt to improve laryngeal and intestinal tuberculosis. After partial upper thoracoplasty the closure of cavities takes place by concentric retraction. A thoracoplastic operation cannot be standardized as to its extent. No untoward effects were observed if the first stage was done on the upper ribs. Good results can be obtained by a partial upper thoracoplasty. If the cavities are collapsed first, normal portions of the lung can be preserved and it may not be necessary to perform a total thoracoplasty.

Technic and Apparatus for Intrapleural Pneumolysis.—Cutler describes a technic for the closed single cannula method of cutting intrapleural adhesions, based on modifications of the methods and apparatus in common use, in which adhesions are accurately located by roentgenograms and fluoroscopy and the topography of the lung is outlined in mercurochrome on the surface of the chest before the introduction of any instrument. Immediately before the operation, the lung is further collapsed and the adhesions stretched by inflating with air. The pneumothorax needle is introduced at the point of entrance previously decided on for the cannula. The adhesion to be severed is selected and studied minutely by means of a diagnostic thoracoscope, which brings a considerable area of the cavity of the chest into view. By means of an extension attached to the diagnostic thoracoscope, a hooded lamp can be introduced to transilluminate the large blood vessels and extensions of tissue of the lung that may be included within the adhesion. Coagulation and cutting is an automatic and continuous process carried out under the direct control and vision of the thoracic surgeon by means of an operating forceps thoracoscope. By using suitable currents from a vacuum tube high frequency type of generator, the adhesion is severed by diathermy. The coagulated area acts as an effective seal for the stump. Broad adhesions that are too bulky to be grasped within the elongated jaws of the thoracoscope can be severed by an operating electrotome. All the instruments employed fit interchangeably into one cannula and only one puncture of the wall of the chest is required.

Archives of Internal Medicine, Chicago

32: 497-648 (Oct.) 1933

Primary Carcinoma of the Lung, with Especial Reference to Incidence, Early Diagnosis and Treatment. A. J. Hruby and H. C. Sweany, Chicago.—p. 497.

*Diffuse Ulceration of Esophagus and Trachea Associated with Diabetes Mellitus: Absence of Arteriosclerosis. P. P. Vinson and R. M. Wilder, Rochester, Minn.—p. 541.

Human Capillaries in Health and in Disease. I. S. Wright and A. W. Duryee, New York.—p. 545.

*Monosodium Thyroxine, Desiccated Thyroid and an Impure Sodium Salt of Thyroxine: Comparison of Their Effects When Administered Orally with Effect of Thyroxine Injected Intravenously in an Alkaline Solution. W. O. Thompson, Phebe K. Thompson and Lois F. N. Dickie, Chicago.—p. 576.

Benign Familial Polycythemia. A. Spodaro and C. E. Forkner, Boston.—p. 593.

Temperature of Gastro-Intestinal Tract: Effect Thereon of Hot and Cold Foods and of Physical Therapeutic Agents. J. S. Hepburn, H. M. Eberhard, R. Ricketts and C. L. W. Rieger, Philadelphia.—p. 603.

*Changes in Gastric Acidity in Peptic Ulcer, Cholecystitis and Other Diseases Analyzed with the Help of a New and Accurate Technic. Frances R. Vanzant, W. C. Alvarez, J. Berkson and G. B. Eusterman, Rochester, Minn.—p. 616.

Nitrogen and Sulphur Metabolism in Bright's Disease: IV. Retention of Urea in the Nephrosis Syndrome. G. P. Grabfield, Boston.—p. 632.

Urea Clearance Test in Pregnancy. A. Cantarow and G. Ricchiuti, Philadelphia.—p. 637.

Unusual Complications of Diabetes Mellitus.—Vinson and Wilder report two cases of diabetes because of the discovery of unusual and, so far as they know, previously unrecognized complications—diffuse ulceration of the esophagus in the absence of any obstructive lesion and a similar ulceration of the trachea. The possibility of an etiologic relationship in the accompanying metabolic abnormality is considered. The first of these cases is also of interest because arteriosclerosis, other than a few patches and streaks of fatty deposits in the intima that would be expected in any man of the patient's age, could not be found at death. Weichselbaum and other investigators have suggested that arteriosclerosis may be the cause of diabetes in many cases in which the two conditions are found accompanying each other, and not, as is usually assumed, the result of diabetes. This case adds strength to such a view. The diabetes was severe; it persisted, with ineffectual efforts at control, for six years; periods of severe acidosis occurred frequently. Under these circumstances the lipids of the blood must have been abnormally high most of the time, yet arteriosclerosis did not develop to a degree that can be considered abnormal.

Administration of Thyroxine.—In six patients with myxedema whose basal metabolism varied from minus 18 per cent to minus 41 per cent during the period of myxedema, Thompson and his associates found it necessary to administer from 0.4 to 1.46 mg. of the monosodium salt of thyroxine daily by mouth in order to hold the basal metabolism at the normal level. In the two patients in whom a comparison of the daily maintenance dose was made, it was noted that the effect of the monosodium salt by mouth was only from one fourth to one fifth as great as that of thyroxine given intravenously in alkaline solution. Pure synthetic thyroxine had much less effect by mouth than its monosodium salt. Thyroxine for oral use had an effect greater than that of the monosodium salt and less than that of thyroxine given intravenously in alkaline solution. Thus, in four patients whose basal metabolism varied from minus 31 per cent to minus 41 per cent during the period of myxedema it was necessary to administer from 0.46 to 0.73 mg. daily of this product in order to hold the basal metabolism at the normal level. The effect of this substance was from two to two and a half times as great as that of the monosodium salt by mouth, while in the two patients in whom the comparison was made it was only about one half as great as the effect of thyroxine given intravenously in an alkaline solution. The effects of desiccated thyroid by mouth and thyroxine intravenously or subcutaneously were the same on the basis of equivalent iodine contents. In the digestion of desiccated thyroid, peptides and polypeptides of thyroxine are formed which have a wide range of solubility. The solubility of thyroxine compounds appears to be a factor in their absorption from the gastro-intestinal tract and hence in their effect on the basal metabolism.

Changes in Gastric Acidity in Peptic Ulcer.—The studies of Vanzant and her associates show an increase of approximately 12 units of free acidity in the case of duodenal ulcer, an increase which varied with the size of the ulcer, with the number of ulcers found at operation and with the severity of the symptoms produced. Less than 1 per cent of the patients with duodenal ulcer failed to show free acid after an Ewald test meal. In fifty cases studied, the gastric acidity of patients having duodenal ulcer, who, after gastro-enterostomy, returned with jejunal ulcer, was not higher than that of patients similarly operated on, who, after two or more years, are still free from symptoms of jejunal ulcer. In 174 men having gastrojejunal ulcer, the mean free acidity was lower than normal by about 4 units. The incidence of true achlorhydria was 71 per cent of normal. In the case of gastric ulcer the mean free acidity was lower than normal by about 6 units. This lowering was more marked in the cases of ulcers situated in the proximal two thirds of the stomach. The incidence of achlorhydria was half of that observed in normal persons. Practically no change from normal was found in the mean free acidity of patients having cholecystitis and cholelithiasis. No change from normal could be found in the gastric acidity of patients who had submitted to cholecystectomy. In patients who suffered from disease of the gallbladder and ulcer of the duodenum, the acidity was slightly higher than in patients presenting uncomplicated duodenal ulcer. There was no significant deviation from normal in the mean gastric acidity of patients suffering from allergic manifestations, migraine, psychoneurosis and chronic nervous exhaustion. Among the men presenting a psychoneurosis the incidence of achlorhydria was increased about 50 per cent, and among those having migraine it was decreased about 50 per cent. In both groups the incidence of achlorhydria among women was normal. In the absence of marked organic obstruction at the pylorus it was noted that with duodenal ulcer and gastrojejunal ulcer there was a slight increase in the amount of gastric juice removed; there was also a slight increase in the presence of gastric ulcers situated in the distal two thirds of the stomach.

Archives of Pathology, Chicago

16: 453-610 (Oct.) 1933

Cerebral Arteries in Relation to Arteriosclerosis. C. R. Tuthill, Buffalo.—p. 453.
*Pneumonia Due to Friedländer's Bacillus. C. T. Olcott, New York.—p. 471.
Rhabdomyoma of the Uterus. W. G. Harding II and F. D. Hankins, Los Angeles.—p. 480.
Budding Forms (Conidia) in Cultures of Sporotrichum Schenckii. F. D. Weidman, Philadelphia.—p. 487.
Subcutaneous "Mixed" Tumor (Salivary Gland Type) of the Left Thigh. E. F. Hirsch, Chicago.—p. 494.
Neuromatosis of Vermiform Appendix. K. Hosoi, New Orleans.—p. 500.
Lymphocytes in Peripheral Blood of Rabbits Following Injection of Foreign Substances. I. T. Zeckwer, K. C. Bartlett, G. A. Schwarz and R. M. Shapiro, Philadelphia.—p. 510.

Pneumonia Due to Friedländer's Bacillus.—Olcott reports five cases of pneumonia in which the blood at necropsy contained Friedländer's bacilli and a case in which positive cultures were obtained from the lung post mortem. The course was acute in all the cases in which death occurred in from two to ten days after the onset of acute symptoms. The patients were men between 38 and 55 years of age. Three had a definite history of alcoholism and three a history of chronic infections of the upper respiratory tract. In four the blood counts gave less than 7,000 leukocytes, and in one of these less than 2,000, with 24 per cent large mononuclears. In four there was pneumonia of lobar distribution; in one, pneumonia of the lobular type, and in one lobar distribution in one lobe and lobular in another. In five, a typically mucinous appearance was seen on cross section. The pulmonary alveolar walls were more or less injured in all. Sections of four of the lungs showed enormous numbers of bacilli in the pulmonary alveoli, while fewer bacilli were found in the other two. Large mononuclear cells in great numbers were the predominating intra-alveolar cell in these four cases, with polymorphonuclears in lesser numbers. The proportions were reversed in the other two cases. The mononuclear cells are believed to be monocytes.

Archives of Surgery, Chicago

27: 629-816 (Oct.) 1933

Chronic Subdural Hematoma: Etiology and Treatment. J. J. Keegan, Omaha.—p. 629.
Osteochondritis of the Head of the Femur: Experimental Study. L. J. Miltner and C. H. Hu, Peiping, China.—p. 645.
*Periarterial Sympathectomy in Fractures: Experimental Study. R. Colp, H. Kasabach and S. Mage, New York.—p. 658.
Treatment of Pulsating Exophthalmos: Report of Two Cases. W. R. Bully and W. J. Gardner, Cleveland.—p. 676.
Surgical Aspects of Renal Agenesis, with Especial Reference to Hypoplastic Kidney, Renal Aplasia and Congenital Absence of One Kidney. R. Gutierrez, New York.—p. 686.
Sweat Gland Tumor. K. Speed, Chicago.—p. 736.
Influence of Hypertonic Salt Solutions on Motility of Normal and of Obstructed Intestine: Experimental Study. A. Ochsner, I. M. Gage and R. A. Cutting, New Orleans.—p. 742.
Perineal Prostatectomy: Presentation of the Wildbolz Technic. H. Sugar, Los Angeles.—p. 771.
*Circular Suture of Blood Vessels: Experimental Study. H. F. Thurston and E. B. Lamb, Indianapolis.—p. 786.
Staining of Cartilage: Gross Staining by Intra-Articular Injection of Dyes in Animals. M. S. Burman and C. J. Sutro, New York.—p. 803.
Fifty-First Report of Progress in Orthopedic Surgery. J. G. Kuhns, E. F. Cave, S. M. Roberts and J. S. Barr, Boston; J. A. Freiberg, Cincinnati; J. E. Milgram, New York; R. I. Stirling, Edinburgh, Scotland, and P. D. Wilson, Boston.—p. 807.

Sympathectomy in Fractures.—Colp and his associates confirm the experimental work of others that periarterial sympathectomy has a physiologic basis for clinical application in the repair of fractures. Radiopaque visualization of the arterial tree of the lower extremity on which a femoral arterial sympathectomy was performed at Scarpa's triangle revealed an increasing vascularity in all experiments. This persisted throughout the longest period of observation (ten weeks). Callus was first detected on the sympathectomized extremities in five dogs, three times on the control extremities, and in one instance it was doubtful. Firm bony union was evidenced sooner on the sympathectomized side in all animals surviving a sufficient period of observation. Complete bony union, as determined by obliteration of the fracture line, occurred only on the sympathectomized extremity and was never noted on the control side during the period of observation.

Circular Suture of Blood Vessels.—Thurston and Lamb used the original Carrel technic with the following modification: To form the posterior point of the triangle, they placed two traction sutures through the edges of the vessel and closely together in the back wall. The ends of one were brought out to the right and the ends of the other to the left of the vessel. The collateral circulation is better preserved, as the artery need not be freed from its collateral vessels for so great a distance. The ends of the artery are apposed by tying the retaining stitches. An end of one of the posterior retention sutures is threaded into a number 16 straight needle, and a side of the triangle is sutured. The last stitch of the line, the lock stitch, taken 1 mm. from the traction suture, prevents the line of suture from loosening or from being drawn too taut by subsequent pulling. When the second posterior traction suture is reached, the continuous suture is tied to one of its ends. The suture line is then carefully inspected; accessory sutures are taken if needed, and the flow of the blood is reestablished. The distal tape is removed first, and the proximal as quickly as possible. A thin strip of muscle held closely to the suture line, as suggested by Bird, hastens clotting in the needle holes. When the bleeding stops, the ends of the tunica adventitia are brought over the suture line by interrupted stitches, the sheath of the vessel is closed and the edges of the peritoneum are apposed. From their experiments the authors conclude that surgical trauma and retardation or distortion of the blood current are the chief contributing factors to the thrombosis that occurs when blood vessels are sutured. Infection plays a minor part as a cause of blood clotting at the line of suture. Careful asepsis is essential to preclude breaking down of the line of suture. An obstructing thrombus, when it occurs, usually forms within a few hours after vascular repair. It is secondary usually to platelets deposited before the full flow of blood is released. The increase in blood platelets does not reach its maximum until a few days after operation, usually too late to influence thrombosis in the segment of repair. Solution of heparin fulfils the requirements of a satisfactory anticoagulant in suture of the blood vessels.

Colorado Medicine, Denver

30: 365-400 (Oct.) 1933

Presidential Address. G. B. Webb, Colorado Springs.—p. 370.
Nonfatal Gunshot Injuries of Skull with Intracranial Retention of Projectile. E. A. Schmidt, Denver.—p. 375.
Unanimity of Pregnancy, Menstrual and Estrous Cycles. T. M. Burns, Denver.—p. 381.
*Transfusion of Blood in Tuberculosis: Report of Fifty Cases. C. A. Bundsen, Denver.—p. 385.
Potassium Oleate as a Sclerosing Agent for Varicose Veins. E. J. Perkins, Denver.—p. 387.

Transfusion of Blood in Tuberculosis.—Bundsen states that small blood transfusions of from 15 to 20 cc. have seemed of real value in hemoptysis. He has had four patients who stopped bleeding immediately, one shortly after transfusion and one in two weeks. Three of these have had no hemorrhage since, but one had hemoptysis one year afterward. Chills and fever of varying degree were observed after the transfusion in thirty-seven patients but seemed to have no deterrent effect on the subsequent progress of the cases. The author suggests that the contraindications to the use of the transfusion of blood in tuberculosis include pulmonary edema, advanced nephritis and myocarditis, but in the complicating factor of nephritis, which is not of long duration, small transfusions of blood may be of decided value. The possibility of there being a distinctive value in the blood of a cured tuberculous patient has been considered, and a record of a Pirquet reaction of donors would be of interest in this connection.

Florida Medical Association Journal, Jacksonville

20: 139-186 (Oct.) 1933

Placenta Praevia. H. I. Pearson, Miami.—p. 147.
Cerebral Injuries of the New-Born. J. H. Fellows, Pensacola.—p. 150.
Management of Acute Spinal Cord Injuries. J. G. Lyerly, Richmond, Va.—p. 153.
Diverticulitis and Carcinoma of the Colon. F. K. Boland, Atlanta, Ga.—p. 157.
Primary Carcinoma of Fallopian Tubes: Report of Case. J. S. Helms, Jr., Tampa.—p. 160.
Arthritis in Industry. T. M. Rivers, Kissimmee.—p. 163.
Possible Causative Mechanism of Bacterial Endocarditis. J. S. Grable, Tampa.—p. 166.

Indiana State Medical Assn. Journal, Indianapolis

26: 503-544 (Oct. 1) 1933

The Work of the Indiana State Medical Association. J. H. Weinstein, Terre Haute.—p. 503.
Rocky Mountain Spotted Fever: Case Report. T. Z. Ball, Crawfordsville.—p. 508.
Traffic Fracture of the Elbow. M. C. Topping, Terre Haute.—p. 509.
Recognition of the Hyperthyroid State. R. D. Bayley and R. A. Flack, Lafayette.—p. 511.
Medical Care of the Indigent in Indiana. A. W. Cavins, Terre Haute.—p. 515.
Indications for Surgery in Gallbladder Diseases. M. N. Hadley, Indianapolis.—p. 517.
Hodgkin's Disease. R. E. McIndoo, Kokomo.—p. 520.

Journal of Bacteriology, Baltimore

26: 331-430 (Oct.) 1933

Application of Statistics to Problems in Bacteriology: II. Consideration of Accuracy of Dilution Data Obtained by Using a Single Dilution. H. O. Halvorson and N. R. Ziegler, Minneapolis.—p. 331.
Gaseous Metabolism of Lactobacillus Pentoaceticus with Reference to Several Representative Members of Lactobacillus Group. G. A. Hunt, New Haven, Conn.—p. 341.
Differentiation Between Gram-Positive and Gram-Negative Micro-Organisms by Use of Enzymes. D. W. Bruner, Ithaca, N. Y.—p. 361.
Development and Control of Micro-Organisms in a Pulp and Paper Mill System. J. R. Sanborn, Glens Falls, N. Y.—p. 373.
Use of Shredded Asbestos in Methane Fermentations. C. R. Breden and A. M. Buswell, Urbana, Ill.—p. 379.
Photo-Electric Nephelometer for Estimating the Population Density of Micro-Organisms. O. W. Richards, and T. L. Jahn, New Haven, Conn.—p. 385.
Propionic Acid Bacteria: II. Classification. C. H. Werkman and R. W. Brown, Ames, Iowa.—p. 393.
Modified Eijkman Medium. C. A. Perry and A. A. Hajna, Baltimore.—p. 419.

Journal of Infectious Diseases, Chicago

53: 145-286 (Sept.-Oct.) 1933

Poliomyelitis: IV. Further Studies on Immunization of Sheep to Virus of Poliomyelitis, with Comparison of Neutralization Tests, Using the Old and Recent Strain of Virus. Beatrice F. Howitt, San Francisco.—p. 145.
*Relation of Allergy to General Resistance in Streptococcic Infection. B. J. Clawson, Minneapolis.—p. 157.
Urinary Compound of Albumin, Bence-Jones Protein, Pseudoglobulin and an Unknown Antigen. W. H. Welker and L. Hektoen, Chicago.—p. 165.
Filtrable Virus Carriers. C. S. Gibbs, Amherst, Mass.—p. 169.
Two Avian Tubercle Bacillus Dissociants and Two Human Tubercle Bacillus Strains of Different Virulence: Chemical and Biologic Study. Florence B. Seibert, E. R. Long and Nelle Morley, Philadelphia.—p. 175.
New Type of Ball Mill for Maceration of Tissues and Bacteria Under Aseptic Conditions. A. P. Krueger, Berkeley, Calif.—p. 185.
Moniliasis with Meningeal Involvement. L. W. Smith and M. E. Sano, New York.—p. 187.
Bacteriophage of Bacillus Pertussis. L. W. Sauer and L. Hambrecht, Evanston, Ill.—p. 197.
Micromotion Pictures of the Growth of Mycobacterium Phlei. R. W. G. Wyckoff and K. C. Smithburn, New York.—p. 201.
Kahn Reaction with Serum of Different Animals. T. J. Porro, Tacoma, Wash.—p. 210.
Gonococcic Meningitis. M. M. Strumia and J. J. Kohlhas, Philadelphia.—p. 212.
Heterophilic Antibodies in Serum Disease: Third Report. I. Davidsohn, Chicago.—p. 219.
Brucella Abortus Infection in Guinea-Pigs: Prevention and Treatment with Immune Serum. R. Gwatkin, Toronto.—p. 230.
Method for Preparation of Bacterial Antigens. A. P. Krueger, Berkeley, Calif.—p. 237.
Biliary Antiseptics. R. Ottenberg, New York.—p. 239.
Effect of Feeding of Salmonella Organisms to Rats on Balanced and on Unbalanced Diets. Elizabeth Verder, Elizabeth Downing and Hazel Wiggers Wilcox, Chicago.—p. 245.
Phenylmercuric Nitrate. K. E. Birkhaug, Rochester, N. Y.—p. 250.
*Is Salmonella Food Poisoning Caused by Living Bacilli or by Thermostabile Toxic Products? Elizabeth Verder and C. Sutton, Chicago.—p. 262.
Endemic Paratyphoid Infection in Turkeys. L. F. Rettger, New Haven, Conn.; W. N. Plastridge, Storrs, Conn., and Ruth Cameron, New Haven, Conn.—p. 272.
Relation of Spiral Organisms to Rough Colony of Bacterium Fusiformis. Ruth Tunnicliff, Chicago.—p. 280.

Relation of Allergy to Resistance.—Clawson studied, experimentally, the relation of allergy to resistance. Rabbits were made hypersensitive (allergic) to streptococci. Another series was made highly resistant to streptococci without the allergic state developing. It was found that organisms were not removed from the blood stream as rapidly in fifteen minutes in the allergic animals as in the normal animals. This suggested some harmful factor associated with the phenomenon of allergy. After two hours, however, a greater number of streptococci per gram of liver were killed in the allergic animals than in the normal animals. This difference was but slight. Organisms in the blood stream and in the liver were killed at a much greater rate in the animals that were made resistant without allergy developing than they were in either the normal or the allergic animals. The observations suggest that the allergic state is not necessary in the development of a general protective resistance to streptococci. It even seems that allergy may be harmful from the standpoint of its effect on the phagocytic cells. Probably it should not be said that allergy in general is a harmful concomitant phenomenon associated with resistance, for, from the standpoint of the repair of tissues, allergy might be looked on as being useful, since the growth of connective tissue is stimulated. It seems that allergy bears no useful relation to general resistance in streptococcic infection, as indicated by phagocytosis, and that at times there may be a harmful relation.

Salmonella Food Poisoning.—According to the experiments of Verder and Sutton, heated and filtered cultures of enteritidis strains produced no symptoms of food poisoning when fed to human volunteers or to monkeys—except in the case of one volunteer who took a culture that had been heated insufficiently to kill the contained organisms. His severe illness, though entirely accidental, provides weighty evidence in favor of living bacilli, rather than thermostable toxic products, being the cause of Salmonella food poisoning. In both man and monkeys the first sign of illness was the development of diarrhea. Cultures of the diarrheal stools were practically pure cultures of the swallowed organisms, indicating that Salmonella enteritidis had supplanted the normal fecal flora. The smaller the number of organisms swallowed, the longer is the period of incubation. The symptoms produced by eating cultures of Salmonella are not unlike those that follow the ingestion of staphylococcus toxin, except that in the cases of Salmonella food poisoning the period of incubation is longer, the onset more gradual and the illness more prolonged. These points of difference might be explained by a gradual accumulation and gradual decrease of absorbable toxic substances in the intestine following ingestion of cultures of Salmonella. With a return of the normal fecal flora the prostration disappears. While in the present experiments the recently isolated strain (A 5, isolated in May, 1930, five months before the work with monkeys began) was more potent than strain 716 (isolated in 1929), the potency of strain 614 (isolated in 1928 and taken by mistake) indicates that strains maintained on artificial mediums for some time may under certain conditions be as toxic or virulent as recently isolated strains.

Journal of Nervous and Mental Disease, New York

78: 333-452 (Oct.) 1933

Mental Aspects of Brain Tumors in Psychotic Patients: Study of Twenty-Six Verified Cases. G. R. Jameison and G. W. Henry, White Plains, N. Y.—p. 333.
Tryparsamide in the Treatment of Neurosyphilis. H. H. Reese, Madison, Wis.—p. 354.
*Progressive Bulbar Paralysis: Its Pathology and Relation to Amyotrophic Lateral Sclerosis. M. Helfand, Vienna, Austria.—p. 362.
Study of Developmental Craniocerebral Topography as Determined by Orthoscopic Method. W. T. Peyton, Minneapolis.—p. 381.

Progressive Bulbar Paralysis.—Helfand believes that progressive bulbar paralysis is a syndrome of other disease entities, mostly of amyotrophic lateral sclerosis. A pathologic process may exist in cells without giving its clinical equivalents. The process is not confined to motor cells or definite motor tracts. It is due to a constellation of causative factors and is most likely precipitated by an exogenous toxin which influences neural as well as mesodermic tissue. Of the author's four cases three presented unmistakable amyotrophic lateral sclerosis, really amyotrophic bulbar paralysis, and only one of the four presented what might be called a true progressive bulbar paralysis, for this case alone was unaccompanied by a degeneration of the pyramidal tract.

Maine Medical Journal, Portland

24: 183-208 (Oct.) 1933

Renal Pathology: Clinical and Pathologic Correlation. J. Gottlieb and O. Tibbetts, Lewiston.—p. 187.
Relation of Recreational Activities to Mental Health. F. E. Leslie, Northampton, Mass.—p. 193.

Minnesota Medicine, St. Paul

16: 609-660 (Oct.) 1933

Clinical Classification of Chronic Suppurative Diseases of the Middle Ear. W. B. Stark, Rochester.—p. 609.
Conservative Treatment of Otitis Media. C. M. Anderson, Rochester.—p. 610.
Indications for Surgical Interference in Case of Chronic Suppurative Otitis Media with Mastoiditis. H. I. Lillie, Rochester.—p. 613.
Operative Procedure in Chronic Suppurative Otitis Media with Mastoiditis. B. E. Hempstead, Rochester.—p. 615.
The Achlorhydric Anemias. F. J. Hirschboreck, Duluth.—p. 617.
Diagnostic Significance of Pupillary Changes. A. E. Smith, Minneapolis.—p. 623.
Infectious Erythema: Report of Ten Cases Observed During Epidemic of Measles in North St. Paul, Minn. E. W. Cowern, North St. Paul, —p. 628.
Septicemia Following Operation: Report of Two Cases. Selma C. Mueller and J. C. Masson, Rochester.—p. 631.

Ohio State Medical Journal, Columbus

29: 601-672 (Oct. 1) 1933

Glance at Our Balance Sheet: Annual Address of the Retiring President. H. M. Platter, Columbus.—p. 621.
Educational Functions of the State Medical Association: Inaugural Address of the Incoming President. C. L. Cummer, Cleveland.—p. 625.
Observations in Ulcerative Colitis with Illustrative Cases. V. C. Rowland, Cleveland.—p. 629.
Eosinophilia 75 Per Cent. A. Cowan, Cleveland.—p. 633.

Public Health Reports, Washington, D. C.

48: 1219-1250 (Oct. 6) 1933

Estimation of Fluorides in Waters. E. Elvove.—p. 1219.

48: 1251-1276 (Oct. 13) 1933

Sickness and Economic Depression: Preliminary Report on Illness in Families of Wage Earners in Birmingham, Detroit and Pittsburgh. G. St. J. Perrott, S. D. Collins and E. Sydenstricker.—p. 1251.

Southwestern Medicine, Phoenix, Ariz.

17: 287-320 (Sept.) 1933

Some Observations on Cesarean Section. J. Vance, El Paso, Texas.—p. 287.
Cancer of the Breast: General Discussion. J. W. Cathcart, El Paso, Texas.—p. 291.
Etiology of Eczema. B. Shelmire, Dallas, Texas.—p. 297.
Spinal Fluid. J. D. Hamer, Phoenix, Ariz.—p. 307.
Pain in Lumbar Region and Jaundice (Diagnostic Discussions). R. Flinn, R. J. Stroud and P. Dysart, Phoenix, Ariz.—p. 310.

17: 321-358 (Oct.) 1933

Surgical Treatment of Arthritic Joints. E. D. McBride, Oklahoma City. —p. 321.
Neurasthenia. S. D. Swope, El Paso, Texas.—p. 323.
Cooperative Plan for First Aid in Automobile Accidents (Fractures). C. E. Yount, Prescott, Ariz.—p. 328.
*Encephalitis Complicating Measles; Treatment with Convalescent Serum Intraspinously: Case Report. B. P. Storts, Jr., Tucson, Ariz.—p. 330.

Encephalitis Treated with Convalescent Measles Serum.—Storts reports a case of encephalitis complicating measles in a boy of 7 in whom convalescent serum was used. Chloral hydrate and sodium bromide rectally and codeine hypodermically were given to control the convulsions. Coma prevailed and six hours later the rectal temperature was 107 F., the pulse 140 and the respirations 50. A hypodermoclysis of physiologic solution of sodium chloride and continuous intravenous injection of a 10 per cent solution of dextrose were given. Insulin was given with the dextrose. The next day the neck was stiff and opisthotonos was marked. The rectal temperature fluctuated from 101.4 to 108 F., the pulse rate to 130 and the respirations to 40. There were moist râles in the left side of the chest. The patient was still unconscious, but the convulsions were controlled. The spinal fluid was slightly opalescent. A second spinal puncture was done and 20 cc. of fluid was withdrawn and 8 cc. of recent convalescent serum was given intraspinally. The serum was obtained from a patient two weeks convalescent from measles. The boy regained consciousness during the night of the third day of the illness, though he was still stuporous. The rectal temperature fluctuated from 100 to 103.4 F. during the day. The opisthotonos was still marked. The spinal fluid cell count was 90. Again 20 cc. of fluid was removed and 6 cc. of convalescent serum was given intraspinally. From here on the course was favorable. The patient was fed by gavage for three days more. The cervical rigidity and opisthotonos persisted for another ten days.

Tennessee State Medical Assn. Journal, Nashville

26: 369-416 (Sept.) 1933

Considerations of Surgical Treatment of Goiter Based on One Thousand Operations. W. D. Haggard and C. R. Crutchfield, Nashville.—p. 369.
Surgical Treatment of Pulmonary Tuberculosis. H. Acuff, Knoxville. —p. 381.
*Use of Sodium Amytal in the Treatment of Eclampsia. M. S. Lewis, Nashville.—p. 392.
Infections of Floor of Mouth or Ludwig's Angina. G. H. Berryhill, Jackson.—p. 397.
*Nonsurgical Treatment of Carbuncles. T. R. Ray, Shelbyville.—p. 403.

Sodium Amytal in Treatment of Eclampsia.—After studying a series of forty-five cases, Lewis states that from 7½ to 15 grains (0.5 to 1 Gm.) of sodium amytal given intravenously and repeated at necessary intervals will absolutely control the convulsions of eclampsia. Sodium amytal permits one to treat the patient intelligently without reoccurrence of the convulsions. Immediate delivery in eclampsia by radical operative procedures is unnecessary in both the mild and severe types. Rupturing the membranes seems to be the procedure of choice in inducing labor. Labor, as a rule, is allowed to terminate spontaneously. Inhalation anesthesia, other than gas-oxygen, should be discouraged. Cesarean section, under local anesthesia, is indicated in a few cases that do not respond to adequate medical treatment within six to twelve hours. Favorable or unfavorable results suggest that each case must be individualized.

Nonsurgical Treatment of Carbuncles.—Ray, treating carbuncles, inserts in the center of the indurated dome a small caliber needle held in a 2 cc. glass luer syringe filled with liquid phenol. The needle is carried into the central portion of the mass, almost to the margin of induration, turned at an angle of 45 degrees, and the injection of from 2 to 5 minims (0.125 to 0.3 cc.) of the fluid is made. The needle is then withdrawn, but not through the skin, and three similar injections are made, corresponding to the dial of the clock at 9, 12, 3 and 6. If there is considerable breaking down of the tissue this sequence cannot be followed, but the areas that require treatment are injected. The injection must be made beyond the columns that are breaking down, just in the margin surrounding the inflammatory zone. The patient will experience a sharp pain at the time of injection, but by the time a dressing is applied it will have subsided. The author treated 100 patients by this method without severe reactions and secured good results. The patients seen early require only one treatment and are well in from ten to fourteen days.

United States Naval Med. Bulletin, Washington, D. C.

31: 347-474 (Oct.) 1933

Compression Fracture of the Spine. F. V. Sunderland.—p. 347.
Cardiospasm: Report of Case. T. C. Anderson and J. L. Enyart.—p. 353.
Atabrine in Treatment of Malaria: Report of Fifty-Three Cases. T. L. Morrow and W. G. Wieand.—p. 359.
Leprosy in the Philippines. M. E. Higgins.—p. 363.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

41: 547-604 (Oct.) 1933

Recent Observations on Metabolism of Pregnant Woman. L. A. Emge, San Francisco.—p. 547.
Rôle of the Outpatient Obstetric Dispensary, with the Organization and Methods of the Los Angeles Maternity Service. L. G. McNeile, Los Angeles.—p. 554.
Occiput Posterior Position: Review of Seven Hundred and Sixty-Six Cases. T. F. Bell, Oakland, Calif.—p. 563.
Some Experimental Studies of Anhydrous Cocaine, U. S. P. X Cocaine and Procaine, with Reference to Their Use in Spinal Anesthesia. E. H. Barendrick and R. S. Dow, McMinnville, Ore.—p. 574.
Studies in Prevention of Goiter. W. Weston, Columbia, S. C.—p. 582.

Wisconsin Medical Journal, Madison

32: 665-728 (Oct.) 1933

Occult Syphilis: A Neglected Factor in Diagnosis and Treatment. U. J. Wile, Ann Arbor, Mich.—p. 673.
Cholecystitis: Conclusions Based on Study of Five Hundred Operations. A. S. Jackson, Madison.—p. 678.
Diaphragmatic Hernia: Symptoms and Diagnosis of Traumatic Type: Report of Case. R. W. Blumenthal, Milwaukee.—p. 685.
Injuries to Heart and Aorta. L. M. Warfield, Milwaukee.—p. 688.
Early Orthopedic Treatment of Infantile Paralysis. W. P. Blount, Milwaukee.—p. 693.
Ectopia Viscerum, Associated with Placenta Praevia Centralis: Case Report. E. Habeck, Milwaukee.—p. 697.

Yale Journal of Biology and Medicine, New Haven

6: 1-88 (Oct.) 1933

Dr. William Beaumont, a Sketch. W. R. Steiner, Hartford, Conn.—p. 1.
William Beaumont's Letter to His New Haven Bookseller, Hezekiah Howe, with a Bibliographic Description of the Editions of Beaumont's Book. Charlotte H. Peters and J. F. Fulton, New Haven, Conn.—p. 9.
Medulloblastoma of Cerebellum: Report of Fifteen Cases. B. S. Brody and W. J. German, New Haven, Conn.—p. 19.
*Treatment of Respiratory Failure in Poliomyelitis. P. Harper and R. Tennant, New Haven, Conn.—p. 31.
Theories on Nutrition of Plants from Aristotle to Liebig. Caroline C. Sherman, New Haven, Conn.—p. 43.
Sensitivity to Light in a Case of Hysterical Blindness Studied by Reinforcement-Inhibition and Conditioning Methods. L. H. Cohen, E. R. Hilgard and G. R. Wendt, New Haven, Conn.—p. 61.
*Unusual Localization of Tuberculous Lesions: Report of Two Cases. B. Halpert and J. L. Wilson, New Haven, Conn.—p. 69.

Treatment of Respiratory Failure in Poliomyelitis.—Harper and Tennant present the results of respirator treatment in twenty-four cases of respiratory paralysis occurring during the acute stage of poliomyelitis with clinical, pathologic and bacteriologic data. The respirator was of unquestionable value in the treatment of patients whose respiratory embarrassment was due to paralysis of the intercostal muscles and diaphragm without significant bulbar involvement. It was of little or no value in the care of patients whose difficulty was bulbar in origin and may even have been harmful in some instances. In the unfavorable instances the machine overpowered the choking and coughing reflexes and in some patients even caused forcible insucking through the larynx of secretions from the throat. It hindered those other measures which were effective against aspiration; i. e., a position of hyperextension and postural drainage, suction of secretions from the pharynx, the administration of fluids by parenteral routes and nursing care. The authors' observation of ruptured alveoli and emphysema in their eight necropsies, and focal hemorrhagic pneumonia in seven of these, supports the clinical evidence that the use of the respirator is not harmless. It is not without significance that the only patients with severe bulbar injury to recover were two boys who were not put in the respirators. It is true that their respiratory difficulty was due solely to injury to the muscles of the throat and the larynx without detectable damage to the diaphragm, intercostal muscles or respiratory center. Even so they were not unlike some of the bulbar patients who succumbed, and at the height of their illness these boys were in greater respiratory distress when first put into the respirator than were some of the patients who died. The authors do not concur with the opinion of Wilson that the respirator should be used as a last resort in the pure bulbar types that have not responded to other therapy. It will be difficult to refuse the use of the respirator to these patients, especially since temporary improvement is usual. Nevertheless the authors have seen no lasting improvement in such cases from this form of therapy, which, they believe, makes the ultimate prognosis poorer, except in unusual instances.

Unusual Localization of Tuberculous Lesions.—Halpert and Wilson report two cases in which the unusual localization of tuberculous lesions caused errors in diagnosis that were not rectified until microscopic studies were made of the tissues removed at operation. Had the possibility of such localization been borne in mind, the diagnosis of tuberculosis could probably have been made preoperatively in both cases. In one case, microscopic preparations showed tuberculous ulceration with little caseation, giant cells and proliferative changes in the wall of the intestine. In a mesenteric lymph node removed simultaneously, numerous typical tubercles were seen with predominating proliferative changes. There were a few areas suggestive of amyloid change. A newly prepared longitudinal section of the distal half of the appendix showed an occasional miliary tubercle in the serosa. In the other case, microscopic preparations showed tuberculous ulceration of the skin with typical granulation tissue and numerous giant cells. In the lymph node, numerous solitary and conglomerate fibrocaseous tubercles were seen and some overgrowth of the germinal centers of the follicles.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

8: 291-366 (Oct.) 1933

Studies in Anemias of Infancy and Early Childhood: Part VIII. Leukemia (Leukosis) in Children. R. Gittins.—p. 291.
Incidence of Congenital Hypertrophic Pyloric Stenosis in the Seventeenth and Eighteenth Centuries. C. E. Kellett.—p. 323.
*Circumscribed Cerebral Tumors in Young Infants. Dorothy S. Russell and R. W. B. Ellis.—p. 329.
Amyoplasia Congenita, with Pathologic Report: Case. Dorothy Stopford Price.—p. 343.
Metabolism of Healing in Celiac Rickets. F. J. Ford.—p. 355.

Circumscribed Cerebral Tumors in Infants.—Russell and Ellis report three cases of intracranial tumors in young infants. The cases show that progressive expansion of the skull in a young infant may in rare instances be caused by a large circumscribed tumor of the cerebrum. Such a tumor may be a glioma or a sarcoma; teratomas may also occur in a similar situation and produce similar results. The macroscopic features of such tumors suggest that early recognition of the condition followed by radical surgical treatment might be of benefit to the patient. The readiness with which the expansile skull of the infant compensates for raised intracranial pressure may result in the condition being far advanced before the patient comes under medical observation, and the impossibility of making a neurologic examination in infants increases the difficulty of reaching an accurate diagnosis. In general, the clinical history tends to be of short duration and deterioration is rapid after the infant first comes under observation. The tumor in one case, that of a still-born infant, was a glioma: a polar spongioblastoma.

British Journal of Anaesthesia, Manchester

11: 1-40 (Oct.) 1933

Spinal Anesthesia, Heavy Solution or Light? G. F. Hill.—p. 3.
Variations in Pulse Rate and Blood Pressure During Basal Anesthesia, with Description of Special Case. A. P. Gorham.—p. 12.
Death Under Anesthesia. G. Brown.—p. 16.
Observations on Avertin Narcosis. K. E. Madan.—p. 20.

British Journal of Experimental Pathology, London

14: 297-366 (Oct.) 1933

Fujinami Myxosarcoma in Ducks: Resistance to Reinfection. W. J. Purdy.—p. 297.
Specific Agglutination of Bacteriophage Particles. F. M. Burnet.—p. 302.
Detoxication of Snake Venoms, and Application of Resulting Antigens to Rapid Methods of Antivenomous Vaccination and Serum Production. E. Grasset and A. Zoutendyk.—p. 308.
Inactivation of Insulin by Normal and Diabetic Blood. P. T. Black.—p. 318.
Titration of Antipneumococcus Serum (Type I) in Mice. W. T. J. Morgan and G. F. Petrie.—p. 323.
Estimation of Urea by Urease Methods in Fluoride Blood. C. F. M. Rose.—p. 339.
Tryptophan and Growth of Bacteria. P. Fildes and B. C. J. G. Knight.—p. 343.
*Influence of Histamine and Pilocarpine on Human Gastric Secretion. A. P. L. Blakely and J. F. Wilkinson.—p. 349.
Observations on Absorption of Calcium in Normal Animals. N. B. Taylor, C. B. Weld and J. F. Sykes.—p. 355.

Influence of Histamine and Pilocarpine on Gastric Secretion.—Blakely and Wilkinson observed that the subcutaneous injection of pilocarpine nitrate (6 mg.) was quickly followed by abundant secretion into the stomach of a clear opalescent fluid, similar in appearance and usually nearly equal in volume to that produced by histamine (0.25 mg.). The average ten minute volume, excluding cases presenting achlorhydria, was 24.8 cc. with pilocarpine, as compared with 23.5 cc. after histamine. The greatest ten minute volume was 84 cc. in the case of histamine and 65 cc. in the case of pilocarpine. In the majority of cases a maximal volume was reached within twenty minutes of the stimulus, whether by histamine or by pilocarpine, after which the secretion gradually returned to its original level. A second and equal dose of histamine had an almost identical effect to the first, with a tendency for a maximum to be reached a little more quickly. The response to pilocarpine was likewise fairly constant in any one case,

with an average value slightly greater after the second than after the first dose. Histamine and pilocarpine together produced a greater response than histamine alone, the average increase being about 50 per cent. In cases of pernicious anemia histamine had no effect, and an almost negligible effect in the remaining cases of achlorhydria. Pilocarpine, on the other hand, produced a definite response in the majority of the former and in all the latter; in some cases the resultant volume was considerable.

British Journal of Ophthalmology, London

17: 577-640 (Oct.) 1933

Ocular Conditions in Diabetes Mellitus. W. A. Gray.—p. 577.

British Journal of Physical Medicine, London

8: 85-100 (Oct.) 1933

Review of Seventeen Years' Work in the Electrical Department of the Radcliffe Infirmary, Oxford. W. J. Turrell.—p. 85.
Rationale and Technic of Treatment by Graduated Muscular Contractions. M. Smart.—p. 87.
Treatment of Gonorrhea by Electrolysis: Survey of One Thousand Cases. C. Russ.—p. 90.
Some Common Misconceptions Concerning Mechanotherapeutics. E. Cyriax.—p. 92.
The Spa Treatment of Heart Disease. C. R. L. Orme.—p. 95.

British Journal of Surgery, Bristol

21: 173-380 (Oct.) 1933

*Clinical Aspects of Branchial Fistula. H. Bailey.—p. 173.
Diverticula of the Jejuno-Ileum. I. Fraser.—p. 183.
Lipoma of the Mesentery: Case. F. d'Abreu.—p. 212.
Occupational Aneurysm of the Palmar Arteries. D. S. Middleton.—p. 215.
Coccygeal Sinus. R. L. Newell.—p. 219.
Associated Facial and Intracranial Hemangiomas. L. Rogers.—p. 229.
Pouches of Pharynx and Esophagus, with Especial Reference to Embryologic and Morphologic Aspects. R. W. Raven.—p. 235.
Surgical Treatment of Bronchiectasis. R. M. Janes.—p. 257.
*Pulmonary Lobectomy: Technic and Report of Ten Cases. J. E. H. Roberts and H. P. Nelson.—p. 277.
Bronchiectasis: Study of Pathology of Sixteen Surgical Lobectomies for Bronchiectasis. W. L. Robinson.—p. 302.
Etiology and Treatment of Slipped Epiphysis of Head of Femur. E. N. Wardle.—p. 313.
Observations on Multiple Intramesenteric Diverticula of Small Intestine. R. W. Butler.—p. 329.
Cleft Palate. W. E. M. Wardill.—p. 347.

Clinical Aspects of Branchial Fistula.—Bailey points out that the statement of Wenglowski that the branchial apparatus never leaves remnants in the neck below the level of the hyoid must be incorrect. The author presents a case which illustrates a persistent branchial cartilage—a remnant, the origin of which cannot be disputed—situated in the lower third of a child's neck in the exact position in which a branchial fistula commonly opens. A cervical auricle, by its structure clearly a homologue of the pinna, is situated at the point where a branchial fistula usually opens. Histologically, a branchial fistula is usually lined by columnar epithelium and its walls sometimes contain muscle. There is no reason why a thymic bud should contain these elements. The anatomic relationships of a branchial fistula as displayed during an operation for its extirpation are in keeping with those depicted in works on embryology as belonging to the cervical sinus and the second cleft, which persists in the goat to open into the fossa of Rosenmüller.

Pulmonary Lobectomy.—Roberts and Nelson state that by their technic the mortality of lobectomy may be reduced. One of the authors' patients died from cerebral abscess ten days after operation, and one from influenzal pneumonia three months after operation; six are well and free from symptoms and two are back at work, but with slight symptoms. The incision through the skin and extracostal muscles runs straight from the costal margin in front along the seventh interspace to the midline behind for lower lobe lobectomy and the fourth interspace for upper lobe lobectomy. All bleeding points are coagulated with a diathermy current. The lateral margin of the erector spinae is freed, the posterior ends of the seventh and eighth ribs are exposed, the intercostal muscles in the middle of the incision are divided for about 3 inches, the space is widened by pulling the ribs apart with small hook retractors, and the parietal pleura is exposed and incised. If there is a rush of air into the chest, the opening is immediately plugged with the finger and the air allowed to enter slowly. The pleural space, the intercostal muscles and the pleura are divided rapidly for their entire length with scissors. At the posterior end this incision keeps near the lower rib so as to avoid the intercostal vessels. The erector spinae is retracted and with a pair of straight bone-cutting forceps the posterior ends of the ribs above and below the incision are divided opposite the tips of the transverse processes without previous elevation of the periosteum. Before the ribs are spread apart, the adjacent pleural adhesions must be separated. The fingers of the two hands are then inserted into the chest and the ribs slowly but forcibly pulled apart for from 4 to 5 inches in an ordinary adult. An illuminated rib retractor is inserted and opened out to maintain this space. All adhesions surrounding the lower lobe must be separated, and the costal surface of the upper lobe freed in order to allow it to expand. The lobes are separated along the oblique fissure. Finally the pulmonary ligament is divided as far as the inferior pulmonary vein. A pedicle will now be produced, round which the operator's finger and thumb should be able to meet. The loop of a tourniquet is slipped over the diseased lobe and kept as high up the pedicle as possible while the assistant winds in the cord and tightens it. A second tourniquet is then employed and tightened up round the lung 1½ inches distal to the first. The pleural cavity is packed off with four or five large dry gauze swabs, which also cover the margins of the wound in the wall of the chest. The pedicle is divided half-way between the cords with curved scissors. When the lobe has been removed, the pedicle is swabbed with a 1:1,000 solution of acriflavine hydrochloride and the gauze packs are removed. The pedicle is sutured with number 1 chromicized catgut on a round-bodied half-circle needle. This passes through the white bronchovascular area as if this were a homogeneous structure and draws it together, but the fringe of lung is not included in the first two rows. The suture is continuous, starts at one end of the pedicle and after reaching the other end returns as a second row to the first point, where it is tied. A third continuous suture then draws the fringe of lung tissue across the surface of the pedicle and the pedicle is buried into the under surface of the upper lobe by three or four sutures. The skin and extracostal muscles are retracted, the lateral surface of the ninth rib is exposed in the midaxillary line, and 1 inch of the rib is excised. A stab incision is made through the skin and extracostal muscles into the chest and a drainage tube is drawn from within outward. The intrathoracic portion of the tube is attached to the diaphragm by a loop of catgut so that the tip lies 1 inch below the pedicle. Pericostal sutures are inserted 1½ inches apart for the whole length of the wound.

British Medical Journal, London

2: 591-630 (Sept. 30) 1933

Radiology of Heart Disease. J. Parkinson.—p. 591.
Id. P. Kerley.—p. 594.
Radiologic Diagnosis of Cardiac Enlargement. C. Bramwell.—p. 597.
Some Observations on Rickets, with Especial Reference to Its Occurrence in Pigs. J. P. McGowan.—p. 599.
Observations on Examination of Swimming-Bath Water. J. A. B. Hicks, R. J. V. Pulvertaft and F. R. Chopping.—p. 603.

2: 631-670 (Oct. 7) 1933

Deficiency Anemias of Childhood. L. G. Parsons.—p. 631.
Anesthetics from Practical and Scientific Aspects. F. J. Morrin.—p. 636.
Bronchiectasis: Diagnosis and Prognosis in Relation to Treatment. F. C. Roles and G. S. Todd.—p. 639.
Hysterectomy: Critical Survey with Report of Two Hundred and Ten Cases. A. H. Davidson.—p. 643.
Acute Suprarenal Hemorrhage: Case. D. B. Rosenthal.—p. 645

Glasgow Medical Journal

2: 129-236 (Oct.) 1933

Diuretics. S. Alstead.—p. 129.

Irish Journal of Medical Science, Dublin

No. 94: 549-598 (Oct.) 1933

Operative Treatment of Cataract. R. E. Wright.—p. 549.
Celiac Disease. R. E. Steen.—p. 567.
Cardiologic Research at Bad Nauheim. P. T. O'Farrell.—p. 579.
Control of School Myopia. N. B. Harman.—p. 587.

Journal of Laryngology and Otology, Edinburgh

48: 657-732 (Oct.) 1933

*Progressive Lethal Granulomatous Ulceration of the Nose. J. P. Stewart.—p. 657.

Granulomatous Ulceration of the Nose.—Stewart describes a disease to which he cannot give a definite name and whose cause is obscure. In his opinion the most descriptive term is "progressive lethal granulomatous ulceration of the nose." He reviews ten cases. The disease is practically confined to the male sex, the ratio being 9:1. Eight of the ten cases occurred between the ages of 28 and 42 years. From the clinical and microscopic appearances, the author concludes that the disease is not one of tumor but essentially a pyogenic one, a chronic inflammatory process. The clinical picture is one of progressive destruction of the nose, face and pharynx. The disease is characterized by a mild leukocytosis (14,800) or a leukopenia (2,200), with the white blood cells in their normal proportions. There is prolonged and hectic fever and frequent, severe hemorrhages. The duration of the illness is from one to two years. The most marked feature is the patient's complete absence of resistance to the infection. The disease must be differentiated from ulceration occurring in the nose due to syphilis, tuberculosis, malignant disorders, agranulocytosis, mycosis and myiasis, yaws, leprosy, rhinoscleroma, leishmaniasis, rhinopharyngitis mutilans (gangosa) and trophic postencephalitic ulceration. In six of seven cases in which bacteriologic observations were made, the presence of a streptococcus in combination with a staphylococcus was reported. Local applications proved unavailing. Radium treatment was employed in two cases with indefinite results; but high voltage roentgen therapy promised more success and deserves further trial. Eight patients died from the direct effects of the disease: sapremic cachexia and repeated hemorrhage. One survived for four months after local cure before succumbing to generalized sarcomatosis cutis and one died from atypical "miners' phthisis" four years after recovery from the local disorder.

Journal of Tropical Medicine and Hygiene, London

36: 281-296 (Oct. 2) 1933

Bacteriologic and Serologic Study of Eighty-Nine Cases of Dysentery in Which Bacillus Dysenteriae Flexner and Bacillus Dysenteriae Castellani Sonne Were Isolated as Causative Agents. M. H. Soule and Anne M. Heyman.—p. 281.

Antimalarial Chemotherapeutic Tests at the Devon Mental Hospital. S. P. James.—p. 289.

Lancet, London

2: 735-786 (Sept. 30) 1933

Treatment of Urinary Infections in Puerperium by a Ketogenic Diet. A. T. Fuller and L. Colebrook.—p. 735.

Angioneurotic Edema. W. Lennon.—p. 739.

*Physiologic Investigation of Rocking Method of Artificial Respiration. Esther M. Killick and F. C. Eve.—p. 740.

*Electrical Method for Use in Diagnosis of Diseases of Thyroid Gland. M. A. B. Brazier.—p. 742.

Effect of Radiation on Blood: Note. G. W. Phillips.—p. 745.

Observations on Serum Treatment of Type I Lobar Pneumonia. D. Leys.—p. 748.

Otitic Hydrocephalus. H. G. Garland and G. S. Seed.—p. 751.

After-Care of Varicose Legs. S. McAusland.—p. 753.

*Manipulative Method for Reduction of Fractures of Surgical Neck of Humerus. C. Frankau.—p. 755.

Pathologic Calcification: Case. L. B. Stott and V. Cotton-Cornwall.—p. 755.

Rickets in a Breast-Fed Infant Aged Five Weeks. B. Sandler.—p. 757.

Rocking Method of Artificial Respiration.—Killick and Eve compared the tidal air induced in artificial respiration by rocking on the stretcher with that produced by Schafer's method. The comparison indicated that the rocking method is at least as effective as any of the manual methods. The rocking method has the advantage over the prone pressure method of requiring less exertion in performing the necessary movements. Therefore artificial respiration can be maintained more easily over long periods. The method can be applied by an untrained operator, following simple instructions as to timing. Warmth, a factor so important and so commonly neglected, can be adequately applied. Investigation of the circulatory changes induced by the rocking method show that their magnitude is not such as should be of clinical importance. As to the variations in the gaseous exchange with different rates of rocking, the figures show that at rates above fifteen times per minute there is a tendency to overventilate and hence wash out carbon dioxide in amounts disproportionate to the amount of oxygen that can be absorbed. Since carbon dioxide is an important stimulus to the normal activity of the respiratory center, the onset of spontaneous breathing might be delayed if its amount in the blood should be reduced too far. Since measurements by Silvester's method of lung ventilation show that rocking the stretcher ten or more times a minute induces adequate ventilation, the authors conclude that for most subjects the optimal rate of rocking the stretcher lies between ten and fifteen times per minute, i. e., the normal rate of breathing. In practice, Schafer's method must be tried without delay and used until the rocking stretcher with blankets and hot water bottles can be brought and employed if resuscitation is delayed or inadequate. One of the authors (Eve) described the method in the *Lancet* of Nov. 5, 1932. The unconscious patient is placed face downward on a pivoted rockable stretcher, which is rocked 45 degrees up and down. The weight of the abdominal viscera in the head down position pushes the diaphragm up into its expiratory phase. In the feet down position, inspiration is similarly produced.

Electrical Method in Diagnosis of Thyroid Disease.—Brazier developed a method for studying the impedance of the human body to an alternating current. He terms the electrical characteristic of the human body which is under investigation the "impedance angle." In constant current work the impedance of the body can be measured by a single factor—the resistance; but with alternating currents the body functions not only as a resistance but also as a condenser. The ratio of these two factors is a property of the dielectric under observation (in this case the body), and it is a function of this ratio which shows variations in thyroid disease and which is defined as the impedance angle. The patient sits on a chair with each arm immersed to the elbow in arm baths containing 10 liters of a 1 per cent solution of sodium chloride at a temperature of about 25 C. The results are unaffected by variation of the temperature of the baths, by slight movements on the part of the patient, by the emotional state of the patient or by the strength of the current passing through the body. No preparation of the patient by resting or fasting is necessary and only a slight degree of cooperation is required. When the arms have been immersed in the baths, an alternating current sufficiently low in intensity to be imperceptible to the patient is led through him into a simple bridge circuit. The impedance offered by the patient to the current can be balanced on the bridge by adjustment of a variable condenser and a variable resistance, and the impedance angle can be calculated from the readings. Study of the normal subject shows that the impedance angle remains almost constant from day to day in the same individual and that normal groups give only a small standard deviation about the mean for the impedance angle. The values for men and for women fall into two defined groups, the women giving higher values. In order to determine whether there is a significant departure from the normal mean in cases of thyroid disease, 120 women were examined. The results indicated that in thyrotoxicosis there is a marked deviation from the normal, giving high values for the impedance angle—values which in nearly all cases are far outside the standard deviation of the normal group. A comparison of the means for the groups of primary thyrotoxicosis and secondary thyrotoxicosis with that of the normal women and with the mean of a group of patients having nontoxic goiter shows that the increase in the impedance angle in thyrotoxicosis is so great that even the means for these two groups are greater than twice the standard deviation of the normals. The author observed that the severer the disease the higher the impedance angle, and in this way the impedance angle can be correlated with the basal metabolic rate. The impedance angle is not dependent on the basal metabolic rate. It has been shown that in the absence of a thyroid factor the impedance angle is independent of the basal metabolic rate, but in all cases in which the basal metabolic rate is raised by thyrotoxicosis, by thyroid feeding or by the injection of thyroxine or thyroid, the impedance angle also will be raised. In this way the impedance angle proves a more specific test for thyroid disturbance than does the basal metabolic rate.

Fractures of the Humerus.—While operating on a patient for the reduction of a typical deformity of a fracture of the surgical neck of the humerus, Frankau observed that even after freely exposing the fragments he could not obtain reposition until the arm was pulled right across the trunk to the opposite side of the body—but with this maneuver immediate and easy reposition was obtained. In the next case that came under his care he exerted strong traction under deep anesthesia in the line of the long axis of the arm for some minutes; then crossing over to the opposite side of the body he adducted the arm across the trunk, adduction being carried out to the fullest possible extent and full traction being exerted. After a few moments there was a sharp crack, caused by the lower fragment slipping over the upper fragment. A roentgenogram taken three days later showed perfect anatomic reposition of the fragments.

Presse Médicale, Paris

41: 1925-1940 (Nov. 29) 1933

*Effects of Intravenous Injection of Sodium Salt of Cinchophen on Choleresis in Man. M. Chiray, G. Albot, C. Ribadeau-Dumas and J. Lelourdy.—p. 1925.
Possible Rôle of Pancreatic Juice in Production of Certain Acute Cholecystitides. E. Stulz and R. Bauer.—p. 1928.

Effects of Sodium Salt of Cinchophen on Choleresis.—Chiray and his associates studied the action of cinchophen on the liver. Their method consisted essentially in the collection of C bile before the intravenous injection of 5 cc. of a neutral aqueous solution of a sodium salt of cinchophen and at periodic intervals after its injection and in the determination of the volume of bile and the concentration of bile pigments of each specimen collected. In persons with a healthy liver, the intravenous injection of a sodium salt of cinchophen always causes a marked stimulus to the pigmentary function of the hepatic cell. In persons with hepatic disease, following a similar injection, the pigmentary function is decreased or remains unchanged in more than half of the cases. This is undoubtedly due to a functional disturbance of the hepatic cell. The results obtained up till now are insufficient to permit evaluation of the hepatic function by means of the cinchophen test. They do not as yet give precise information as to the presence or absence of danger in a surgical intervention from the standpoint of a normal or deficient hepatic parenchyma. Increased observation and biopsies on patients in whom the cinchophen test demonstrated a hepatic deficiency may yield this information and may also explain why in some cases, in which clinically the liver appears diseased, it responds satisfactorily to cinchophen. The technic of the method may also be improved as the long duration of the drainage risks the mixture of gastric juice with the bile. Despite these reservations, the authors think that the test has at least a theoretical interest. It does not present any danger and it constitutes a selective examination of the pigmentary function of the hepatic cell, which is one of the most important manifestations of the cellular activity of the liver.

Revue Belge des Sciences Médicales, Louvain

5: 609-684 (Nov.) 1933

*Menstrual Fever in Tuberculous Women. J. Lecloux and C. Carez.—p. 609.
Virus of Exanthematic Rat Typhus in Rats from Ghent and Port of Antwerp. A. Van Meirhaeghe.—p. 653.

Menstrual Fever in Tuberculous Women.—Lecloux and Carez studied the menstrual periods of 309 women affected with pulmonary tuberculosis in all stages. They found that the menstrual period is often a critical period and that the thermic instability of these patients is often accentuated at this time, particularly if the disease is in a stage of evolution. In most of the patients in whom the disease is stabilized, the menstrual period does not differ from a thermic point of view from the intermenstrual period. The more severe the lesions and their evolution, the more abnormal are the menstrual thermic variations. During the course of hygienic and dietetic treatment, the progressive return of the menstrual temperature curves to normal marks rather well the stabilization of tuberculous lesions. It is the same during treatment by efficacious collapse therapy. The improvement of the general condition alone, while certain lesions continue to evolve, does not seem to bring the disturbed temperature curves back to normal. Most of the grave incidents in tuberculous women being treated in a sanatorium occurred during the menstrual periods. It is also during the menstrual period that most of the common and serious accidents inherent in pneumothorax therapy occur.

Minerva Medica, Turin

2: 789-820 (Dec. 8) 1933

Pleural Adhesions and Tuberculous Involvement of Lung. E. Conte and U. de Michelis.—p. 789.
Elective Tropism of Streptococci: Endothelial Streptococcus. E. Frola.—p. 795.
*Relation Between Internal and External Secretion of Pancreas. G. Lucchi.—p. 799.
Amino-Acidemic Curve in Experimental Uremia. S. Cerqua.—p. 802.
Etiology of Goiter: Research in Endemic Mountain Zone. G. Trikurakis.—p. 809.

Internal and External Secretion of Pancreas.—Lucchi stimulated the external pancreatic secretion of thirteen patients by introducing into the duodenum from 60 to 70 cc. of an 8

Medical Journal of Australia, Sydney

2: 465-500 (Oct. 7) 1933

Abuse of the Drainage Tube in the Treatment of Peritonitis, with an Analysis of Two Hundred and Forty-Four Cases of Diffuse Peritonitis Treated Without Drainage. A. J. Trinca.—p. 465.
Early Diagnosis and Treatment of Uterine Cancer. H. H. Schlink and C. L. Chapman.—p. 476.
Dental Health Education in New South Wales. E. B. Green.—p. 482.

Quart. Bull., Health Org., League of Nations, Geneva

2: 353-550 (Sept.) 1933

Report on Housing and Malaria: Summary of What Is Known About Anophelism in Relation to Housing and Malaria. S. R. Christophers and A. Missiroli.—p. 355.
Reform of Medical Education. J. Tandler.—p. 483.
Report of Health Organization for the Period October 1932 to September 1933.—p. 495.

New Technic in Gastrojejunostomy.—Back believes that an easier access to the posterior wall of the stomach is provided by exposing it through an incision in the great omentum by the following technic: The abdomen is opened by a high right paramedian incision and a routine examination is made. If the case requires a gastrojejunostomy, the appendix is removed. An incision is made in the gastrocolic omentum parallel with the greater curvature. This incision gives free access to the lesser sac, and through it the whole of the posterior wall of the stomach can be examined. The site best suited for the anastomosis is selected and clamped. The transverse colon is then held up by an assistant and a second opening made into the lesser sac through the transverse mesocolon. A coil from the upper part of the jejunum is drawn up through the opening in the transverse mesocolon and the most proximal part that can be apposed to the stomach without strain or tension is selected and clamped. The transverse colon is returned to the abdominal cavity and the anastomosis is made in the usual way, except that it is done in the lesser sac. The edges of the opening in the transverse mesocolon are fixed to the jejunum by a few interrupted sutures and the opening in the gastrocolic omentum is closed. The author has found this method to have many advantages over the orthodox one.

Multiple Growths in Esophageal Cancer.—In a series of forty cases of esophageal cancer, McGibbon encountered four in which the patient proved to have more than one growth. One was a primary double carcinoma. Two cases illustrated the spread of esophageal carcinoma by lymphatic permeation. This method of spread is similar to that which occurs in other organs, via the submucous lymph nodes; the secondary growths are upshoots to the surface, and the intervening mucous membrane appears normal. The other case is an example of spread by implantation. It is probable that during an esophagoscopy the under surface of the tongue was injured and that carcinomatous cells were implanted either from the instruments or during postanesthetic vomiting.

2: 787-848 (Oct. 7) 1933

Certain Aspects of Coronary Thrombosis. J. Hay.—p. 787.
Developmental Myopia and Treatment of Myopes. J. Parsons.—p. 795.
Clinical Manifestations of Pulmonary Tuberculosis in Childhood. W. B. Wood.—p. 797.
Infra-Red Plates in Neurohistologic Illustration. D. M. Blair and F. Davies.—p. 803.
Dislocation of Semilunar Bone. J. K. Monro.—p. 801.
*New Technic in Gastrojejunostomy. I. Back.—p. 802.
Bacteremia in Lobar Pneumonia. I. M. Christie.—p. 804.
*Multiple Malignant New Growths Associated with Carcinoma of Esophagus. J. E. G. McGibbon.—p. 806.

per thousand solution of hydrochloric acid. The solution was well tolerated by the majority of the patients. The glycemic curve was studied before the test and every five, ten, twenty, thirty-five and sixty minutes after it. The majority of cases showed a lowering of the glycemic curve. The hypoglycemia was found never less than twenty minutes after administration of the solution and in several cases was preceded by a slight and temporary hyperglycemia. The author maintains that there is a certain degree of correlation between the secretion thus brought on and the internal pancreatic secretion. In the light of a number of factors that cannot be eliminated, it is not improbable that a disturbance of equilibrium of the vegetative nervous system is the cause of symptoms developing immediately after introduction of the liquid into the duodenum, such as general malaise, flushing of the face and brief hyperglycemia.

Brasil-Medico, Rio de Janeiro

47: 815-832 (Nov. 18) 1933. Partial Index

*New Species of Genus Proteus. M. Magalhães and R. Muniz Aragão. —p. 815.
Neurotrophic Infection. A. L. de Siqueira.—p. 817.

New Species of Genus Proteus.—Magalhães and Muniz Aragão isolated an organism of the Genus proteus from pure cultures of the pus of an infant having otitis media. The organism was the etiologic agent of the disease. The agglutination test with the blood serum of the patient was positive with a titration of 1:600. An autovaccine prepared from the micro-organism gave satisfactory results. According to Bergey's classification, the morphologic and cultural characteristics of the micro-organism showed that it belonged to the group of Proteus americanus, discovered by Pacheco in 1928, since it produces no action on sucrose, mannitol and salicin, is motile and produces acid and gas in glycerin. Nevertheless, the new organism ferments galactose with production of gas and acid and does not have any action on glycerin, as opposed to Proteus americanus. The author believes that the organism is a new species of the Genus proteus and proposes to name it Proteus panamericanus.

Archiv für Gynäkologie, Berlin

154: 309-645 (Nov. 17) 1933. Partial Index

Primiparas in Fifth Decade of Life. J. von Khreninger-Guggenberger and E. Leutenmayer.—p. 309.
Thyroid Hormone Content of Blood During Pregnancy. W. Neuweiler. —p. 326.
Carbohydrate Metabolism in the New-Born. E. W. Winter.—p. 354.
Pathologic and Clinical Aspects of Ovarian and Tubal Pregnancies. E. W. Winter.—p. 374.
Studies on Moor in Pyrmont: Action of Moor Baths. E. Wehefritz and E. Gierhake.—p. 384.
Brenner's Tumors in Wall of Ovarian Cystomas. Z. von Szathmáry. —p. 390.
Conservative Operation of Benign, Cystic Ovarian Tumors. B. Kriss. —p. 415.
Isolated Torsion of Uterine Tubes: Case Reports. E. Mosettig. —p. 421.
Persistence of Wolffian Ducts with Renal Aplasia and with Double Formation of Uterus: Case. E. Tscherne.—p. 432.
*Hormonic Function of Granulosa Cell Tumor. H. Dworzak and K. Podleschka.—p. 441.
Velocity of Blood Stream in Normal and Abnormal Pregnancy: Functional Test of Heart During Pregnancy and Birth. W. Spitzer. —p. 449.
Experimental Studies on Temporary Hormonic Sterility According to Haberlandt. G. O. Krämer.—p. 459.
Psychosympathetic Modification of Gravid Human Uterus. C. Giancella. —p. 499.
Bilirubin Tolerance Test of Liver in Diagnosis of Hepatopathy of Pregnancy. K. Fuge.—p. 507.
*Pregnancy Reaction on Basis of General Stimulation of Cells. M. Popoff and A. Dimitrowa.—p. 522.
Congenital Coccygeal Tumors. B. Szendi.—p. 538.
Hormonic Modification of Mammary Gland of Mice: Etiology of Reclus' Disease. C. Wieser.—p. 548.
Genesis of Brenner Tumors. E. G. Abraham.—p. 565.
Clinical Aspects and Histology of Malignant Ovarian Pseudomucinous Adenocystoma. E. Latzke.—p. 574.
*Changes in Suprarenals During Pregnancy. H. Guthmann and Lilli Voelcker.—p. 591.
Rapid Pregnancy Reaction with Mature Mice. R. Brühl and K. Hollstein.—p. 604.

Hormonic Function of Granulosa Cell Tumor.—Dworzak and Podleschka call attention to the fact that hypertrophy of the uterine musculature and of the uterine mucosa, as evidenced by genital hemorrhages, and hypertrophy (sometimes with secretion) of the breasts are frequent attendant phenomena of granulosa cell tumors. Hypertrophy of the uterine mucosa, usually in the form of a glandular cystic hyperplasia but occasionally in the form of a decidua, is almost always present. These changes indicate a hormonic function of the granulosa cell tumor. However, exact analyses of the hormone production of granulosa cell tumors are still scarce. In studies on the hormone production of granulosa cell tumors, the authors found that even a fivefold concentration of the urine of the patient produced in the test animals only the reaction I of the anterior hypophysis. Since this reaction often is elicitable with urine of women presenting malignant genital tumors, and also after castration and during the menopause, it is of course not specific for the granulosa cell tumor. The production of follicular hormone, however, is of greater significance. Experiments have shown that the healthy woman eliminates during the intermenstrual period from 2 to 3 mouse units of this hormone in each liter of urine. In the woman with granulosa cell tumor observed by the authors, the follicular hormone amounted to 50 units per liter. The prolonged influence of such large quantities of hormone must eventually affect the uterus, and in the case under consideration they caused considerable enlargement of the uterus and glandular cystic hyperplasia of its mucous membrane. Because a decidua develops in some cases of granulosa cell tumor, the authors assume that in these cases another hormone, that of the corpus luteum, may be produced by the tumor. They think that in many instances it will be possible to diagnose a granulosa cell tumor before the operation but that it is advisable to have a frozen section made in the course of the operation. In the event that the examination of the frozen section corroborates the diagnosis, the operation should be made as radical as possible and should then be followed by irradiations. The tests for the presence of the follicular hormone should be repeated from time to time, for in this manner recurrences may be detected.

Pregnancy Reaction on Basis of General Stimulation of Cells.—Popoff and Dimitrowa demonstrate that it is possible to detect the flooding of the pregnant organism with hormones by a reaction that is based on the general cellular stimulation. They employ cysts of Euglena gracilis, because a rapid and sure reaction to stimuli is characteristic of these cysts. The authors tried the cysts first in tests on hypophyseal preparations and then on urines from pregnant women, on normal urines and on urines eliminated shortly before or during menstruation. They reach the conclusion that the Euglena cyst reaction has a high degree of exactness, almost comparable to that of the Aschheim-Zondek reaction. As far as the rapidity is concerned, it is superior to the latter reaction, because it can be read in twenty-four hours. However, its execution and reading present great difficulties, and it requires more practice than the Aschheim-Zondek reaction. An increase in the stimulating action of urines is demonstrable also a few days previous to and during menstruation, which indicates that during this time the organism is likewise flooded with hormones. This fact, which had been demonstrated by other methods, was thus corroborated by the Euglena cyst reaction. The authors point out that the same cell stimulating substances can be demonstrated also by an acceleration of yeast fermentation. However, in spite of a reliable basis, the latter method is still subject to errors in the technic and can be used only together with the Euglena cyst reaction. In this connection the authors call attention to the action exerted by the urine from pregnant women on the germination of certain plant seeds, a phenomenon already pointed out by others.

Changes in Suprarenals During Pregnancy.—Guthmann and Voelcker observed in studies on white mice that pregnancy produces a noticeable increase in the size of the suprarenals. The enlargement of the medulla was greater than that of the cortex. Histologic examination disclosed that pregnancy increases the blood perfusion, loosens the tissues, produces a transformation in certain layers and effects an increase in the lipoid content. The pregnancy changes appear in different species of animals in different portions of the organ. In the same species, individual changes occur; but these involve less the type than the degree of the changes. A relation between the severity of changes and the length of the pregnancy could not be detected. The authors conclude that the measurements

as well as the histologic changes indicate an increased function of the medulla and of the cortex of the suprarenals during pregnancy.

Beiträge zur klinischen Chirurgie, Berlin

158: 449-560 (Nov. 15) 1933

Absorption of Catgut. K. von Haefen.—p. 449.
Status of Electrolytes in Aseptic Wounds. R. Andreesen and H. Tammann.—p. 457.
*Suppurative Tenosynovitis of Hand: Treatment and Late Results. H. Deicke.—p. 461.
Topical Diagnosis of Embolism of an Extremity. W. Dick.—p. 481.
Perforations of Esophagus into Pleural Cavity. F. Mörl.—p. 487.
Esophageal Diverticulum. B. Breitner.—p. 501.
Volvulus of Small Intestine in Partial Situs Inversus. F. Oehlecker.—p. 513.

Suppurative Tenosynovitis of Hand.—Deicke presents a follow-up study of 200 cases of severe infections of the tendon sheaths of the hand treated at the surgical clinic of the University of Leipzig. Of these, 129 were designated as phlegmons of the sheaths and 71 as panaritia, or simple felons. The streptococcus was the causative agent in 72 per cent and the staphylococcus in 28 per cent. Involvement of the forearm took place in sixty-one cases by passage of pus from tendon sheaths and from the palmar spaces into the deep intermuscular septums of the forearm. Pus from the midpalmar space can burrow directly under the transverse ligament of the hand, while pus from the radial and ulnar bursae must first perforate it. Necrosis of the sheath and suppuration of the bone or the joint resulted in stiffness of the involved finger. A far more dangerous complication is suppuration of the wrist joint, which develops by extension from the radial bursa by way of the short tendon sheath of the flexor carpi radialis muscle. This complication occurred four times in the author's material and was the cause of one death, two amputations of the forearm and one completely stiff hand. In thirteen cases a severe streptococcic infection became complicated by erysipelas. Hemorrhage resulting from erosion of the radial or the ulnar artery occurred in severe long standing suppuration. Mummifying necrosis of the finger, in contrast to wet gangrene of the phlegmonous tendon sheath, developed in ten cases. Fatal septicopyemia developed in ten cases, in five with metastatic localization of abscesses in the bones and in five without metastatic localization. Of the concurrent constitutional diseases, diabetes played the most important part. It was present in six patients, two of whom passed into a diabetic coma and died, while in one a fatal sepsis developed. Before the introduction in 1905 of constrictive hyperemia treatment, which, in the author's opinion, marks a new era in the treatment of these infections, healing with preservation of function of the fingers was exceptional. The constrictive hyperemia method permitted the use of small incisions, abandonment of packing the incision and of drains, and early recourse to movements of the fingers. The author adopted Klapp's lateral incisions on both sides of the finger missing the annular ligament. He tabulates his results as follows: mortality 8 per cent, good results in 30 per cent, fair results in 17 per cent, and bad results in 53 per cent. When felons of the sheaths alone were considered, the results were as follows: good, 46.5 per cent; fair, 23.9 per cent, and bad, 29.6 per cent. With phlegmons, good results were obtained in 20.9 per cent, fair in 13.2, and bad in 65.9 per cent. The age of the patient played an important part in the prognosis. Most of the fatalities occurred in patients past 60. The younger patients exhibited less tendency to development of complications and more frequently recovered function when complications took place. The earliest possible surgical intervention was essential. Hyperemia treatment alone was practiced in only a few cases and, as a rule, later energetic treatment became necessary in most cases.

Chirurg, Berlin

5: 849-888 (Nov. 15) 1933

*Surgical Treatment of Peptic Ulcers. E. Enderlen and L. Zukschwerdt.—p. 849.
Diagnosis, Prophylaxis and Therapy of Postoperative Disturbances of Circulation. K. H. Schmidt.—p. 865.
Isolated Fracture of Femoral Condyle: Its Operative Treatment. C. Nellet.—p. 871.

Surgical Treatment of Peptic Ulcers.—Enderlen and Zukschwerdt express the opinion that the good results obtained with gastro-enterostomy in the early history of gastric surgery were mainly due to the fact that the operation was performed for benign pyloric stenosis in elderly people with diminished gastric secretion. The disadvantages became evident when the operation was performed in younger persons. In the authors' experience it was followed by not less than 50 per cent of peptic jejunal ulcers. They doubt that neutralization of gastric contents takes place through regurgitation from the bowel of bile and pancreatic juice. Redwitz showed in animal experiments that introduction of the entire duodenal contents into the stomach failed to neutralize its contents. The authors regard gastro-enterostomy as an operation of necessity rather than of choice and practice it in the elderly patients or when resection is not feasible. Only 28.5 per cent of the 192 gastro-enterostomies performed at the Heidelberg clinic resulted in cure. The mortality was 9.6 per cent. The incidence of peptic jejunal ulcer was 51 per cent. The younger the patient, the more likely was the development of the peptic jejunal ulcer. A single profuse hemorrhage was successfully treated by blood transfusion and withdrawal of all nourishment by mouth. Intervention was indicated for recurring hemorrhage or chronic bleeding leading to grave secondary anemia. Of the 112 cases of acute perforation treated by simple suture of the perforation, 31.5 per cent remained healed. Additional gastro-enterostomy is objected to on the ground of the danger of subsequent jejunal ulcer. The authors adopted a conservative course in the treatment of the so-called threatened or walled off perforation. Of the 1,100 partial gastric resections, 800 were followed up. Of these, 85 per cent were found to be symptom free. Recurrence of the ulcer was present in 1 per cent. Failure was due to objective causes, such as ventral hernia, unequal length of anastomotic loops, and gastritis, in 5 per cent. While considering partial gastric resection as the best surgical procedure, they do not regard it as unfailing. Gastric secretion after resection is diminished in quantity but not in quality. They found in man and in animals that the lost chemical phase of secretion may return. The stimulus for it proceeds from the bowel. For these reasons they resect at least two thirds of the stomach. Too extensive resection, on the other hand, may lead to pernicious anemia. They point out that it is quite possible to leave an ulcer behind and that narrowing of the anastomosis and ventral hernia may take place. Adhesions as the cause of postoperative complaints are discredited. That the importance of residual gastritis has been exaggerated is evident from the fact that in the majority of sixty-six cases in which, after a resection, roentgenologic evidence of residual gastritis was present, there were no subjective complaints. They emphasize the importance of psychic factors and the desirability of including the internist in the treatment of postoperative cases.

Deutsche medizinische Wochenschrift, Leipzig

59: 1721-1750 (Nov. 17) 1933

Incretory Diseases of Childhood. E. Thomas.—p. 1721.
*Intravenous Folliculin Therapy. R. Spiegler.—p. 1726.
Substitutional Ferment Therapy in Disturbances of External Secretion of Pancreas. K. Nissen.—p. 1729.
Diagnostic Progress in Hormonic Ovarian Disturbances. C. Kaufmann.—p. 1732.
*Development of Genotype in Human Beings. W. Zeller.—p. 1734.
*Beer and Health. P. Schmidt.—p. 1736.
Psychiatric Testimony in Penal and Civil Courts. K. Schneider.—p. 1739.
Thyroid and Carbohydrate Metabolism. Grafe.—p. 1741.

Intravenous Folliculin Therapy.—In a large percentage of genital hemorrhages traceable to irritations of the uterine adnexa, Spiegler obtained good results with the intravenous injection of folliculin. In other cases, in which folliculin proved ineffective, prolan produced a temporary improvement. The author gained the impression that prolan is effective in the absence of adnexal disturbances, while folliculin produces results in the presence of disturbances of the adnexa. Further investigations will be necessary to prove this theory. He resorted to intravenous injections because quick results were required. The usual dose was 1 cc. (= 100 units). If on the following day the hemorrhage had not ceased, the injection was repeated with the same dose, and if necessary a third dose was administered. However, if this was not effective, the folliculin therapy was considered a failure and prolan was tried. In discussing the mode of action, the author points out that the therapeutic efficacy of such small quantities of hormones is probably the result o

a "hormonic stimulus" which effects an instantaneous alteration in the hormonic content and that this in turn leads to the cessation of the genital hemorrhage.

Material for Racial Studies.—Giving a short outline of the various phases of the growth process, Zeller shows that at the end of the period of puberty the human subject comes closest to its genotype, and that neither before nor after this period does he reach such a degree of genotypical representation. Consequently this time of life is best suited for the determination of the familial and racial characteristics of an individual and it is advisable that only persons of this stage of development be used as material for racial studies.

Beer and Health.—Schmidt discusses the alcohol content, certain aspects of the fermentation and other factors that are important in the preparation of beer. He stresses the necessity of meticulously hygienic conditions. He says that in light lager beer the alcohol content should not exceed 3 per cent by weight. He considers the consumption of larger quantities of beer with an alcohol content of over 4 per cent by weight injurious to the health. He does not entirely oppose the preparation of stronger beers but he thinks that they should be taxed highly. As a general health rule for the consumption of all alcoholic beverages he advises that one should never take a drink without being sure that the stomach contains some food.

Münchener medizinische Wochenschrift, Munich

80: 1805-1840 (Nov. 17) 1933

The Child Does Not Eat! L. Schall.—p. 1805.
*Epidemic of Pfeiffer's Glandular Fever. E. Schulz.—p. 1809.
Diphtheria. S. Wolff.—p. 1813.
*Cause of Death in Accidents Caused by Electricity. S. Koeppen.—p. 1815.
*Diagnosis of Latent Cardiac Insufficiency. K. Barth.—p. 1817.
Treatment of Nasopharynx. Schwarze.—p. 1818.
*Value of Nonspecific and Specific Fever Therapy in Acute Gonorrhea in Men. T. Grüneberg and G. Liebmann.—p. 1820.
Familial Leukemia. F. Striner.—p. 1822.
Satureia Hortensis, Medicinal Plant, Helpful in Diarrheal Conditions. R. Schultzik.—p. 1824.
Simple Method for Determination of Motility of Vertebral Column. L. Böhler.—p. 1826.
Danger of Overexertion in Youth Movement. H. Stursberg.—p. 1826.
Erroneous Granting of Disability Compensation and Possibility of Withdrawing It. A. Hanse.—p. 1827.

Epidemic of Pfeiffer's Glandular Fever. — Schulz observed thirty-five cases of glandular fever from May until July. During the prodromal stage, adults frequently complain of fatigue and drowsiness, while children become irritable and unmanageable. Profuse sweats, lack of appetite, headaches and abdominal pains are quite frequent. This period usually lasts a few days, but it may persist for three weeks. The blood picture, with its pathologic lymphocytes, is decisive in the diagnosis. The prognosis is favorable. After citing several other epidemics of glandular fever from the literature, the author discusses the treatment. He counteracts the fever with amidopyrine. He treats the painful swellings of the lymph nodes with hot oil or paraffin poultices, and solutions of hydrogen dioxide are used for gargling. He recommends also the latter measure as a prophylactic for those who come in contact with patients who have glandular fever.

Cause of Death in Electrical Accidents.—On the basis of studies on dogs and rabbits, Koeppen assumes that the central nervous system is not impaired directly by the electric current but rather by way of an irritation of the circulatory system. He also points out that, since the cranium provides great resistance, direct impairment of the brain seems hardly possible. Registration of the respiration and of the cardiac activity revealed that the electric current paralyzed first the cardiac system and, after that, the respiratory center. The electrocardiogram discloses cardiac fibrillation. Anatomic investigations show that a disturbance in the cardiac vessels predominates. The author reaches the conclusion that death from an electric current is death from impairment of the cardiac vessels. The observations are important for the treatment, in that they indicate that artificial respiration alone is not sufficient and that the disturbance in the cardiac vessels requires medicinal therapy.

Diagnosis of Latent Cardiac Insufficiency.—Barth points out that failure to recognize latent insufficiency of the circulatory apparatus is the cause of two of the most deplorable and unfortunately also most frequent mistakes in the treatment of patients with heart disease: (1) when a heart which is in need of rest is being stimulated and (2) when a heart which requires exercise is given rest. The latter is of course a rarer occurrence. As the most significant somatic symptoms that should call the physician's attention to the possibility of latent cardiac insufficiency, the author mentions gastric catarrh, tympanitis, a feeling of fulness in the epigastrium, constipation, lack of appetite, soreness of the muscles of the neck, pain in the throat, flat and easily tiring voice, headache, general debility, a feeling of heaviness in the legs, dizziness, particularly on arising in the morning, hemorrhoids and pain in the pelvis due to venous congestion, insomnia, particularly a too early awakening, increased sweating, nycturia and decrease in virility. The psychic changes occurring in these subjects are increased irritability, moodiness, frequent depression, impatience, restlessness, anxiety, lack of sexual desire, forgetfulness and indecision.

Fever Therapy in Acute Gonorrhea.—On the basis of comparative investigations on the value of nonspecific and specific fever therapy in acute gonorrhea in men, Grüneberg and Liebmann reach the following conclusions: A noticeable result can be obtained only if local treatment is employed simultaneously. In new, superficial anterior gonorrhea, the fever therapy, in order to shorten the course of the disease, must produce temperatures of more than 39 C. (102.2 F.) and must be accompanied by local reactions. The use of a specific fever-inducing remedy seems to give no particular advantages in these cases. Fever therapy is of equal value in somewhat advanced cases that are complicated by posterior involvement, slight prostatitis or infiltration. If vaccine is used, temperatures of from 37.5 to 39 C. (99.5 to 102.2 F.) are sufficient in these cases, because the specific action plays a part. But this seems to be the case only if there is a further stimulation of immunizing processes that have been induced spontaneously.

80: 1841-1880 (Nov. 24) 1933

*Experiences with Serum Withdrawn After Vaccination. P. Linser.—p. 1841.
Influenza. O. Müller.—p. 1842.
Diagnosis and Treatment of Heart Disease. R. Siebeck.—p. 1844.
Placenta Praevia. F. von Mikulicz-Radecki.—p. 1848.
Errors in Training of Children in Their Significance for Physical and Psychic Development. W. Birk.—p. 1853.
Sport as Therapy of Internal Disturbances. Schlayer.—p. 1856.
Obstetrician and Race Welfare. A. Mayer.—p. 1858.
Familial, Benign Spontaneous Pneumothorax as Sign of "Pulmonary Weakness." P. Morawitz.—p. 1861.
Treatment of Postoperative Tetanus with Antitetanus Preparation 10. P. Martini and A. Heymer.—p. 1864.
Therapy of Progressive Muscular Atrophy: Self Observations. H.—p. 1865.
Improved Pneumothorax Needle. F. Prausnitz.—p. 1866.

Experiences with Serum Withdrawn After Vaccination.—Linser points out that it is of great importance in infections whether the patient himself is capable of resisting the infection, that is, whether the organism possesses sufficient antibodies resulting from former infections, or whether it has the time and power to produce new ones. Prophylaxis by vaccination previous to exposure to an infection has given good results in the campaign against infectious diseases. On the other hand, passive immunization by means of animal serums has proved effective, but in many infections this is not possible, either because of certain peculiarities of the heterogenous serums or because of insufficient formation of antibodies by the animals. For this reason the author has for many years resorted to the vaccination of healthy human subjects with the respective micro-organisms, in order to be able to introduce into the patient a human serum rich in antibodies. He found this procedure helpful in severe gonococcic sepsis, in gonorrheal epididymitis, in streptococcic sepsis, and even in a case of Streptococcus viridans infection. Passive immunization from one human being to another is done by first vaccinating a healthy person with the respective organism. Then, after from two to four weeks, serum from this person is introduced into the patient, who may be given several hundred cubic centimeters of the serum. The author gained the impression that the more severe the infection the larger should be the doses of serum. In doubtful cases, in which the bacteriologic diagnosis is not yet definite, passive immunization should be started on an assumptive basis. This applies particularly to streptococcic

infections, especially those of the viridans type. On the basis of many years of experience the author asserts that the procedure involves no danger for the donor or the patient and that, in conferring immunity, the vaccination is even helpful for the donor.

Zeitschrift für klinische Medizin, Berlin

125: 565-708 (Nov. 10) 1933

Uric Acid in Blood, Cerebrospinal Fluid and Pathologic Fluids. F. Reiche.—p. 565.
Epidemiology of Diphtheria and Scarlet Fever. F. Reiche.—p. 584.
Behavior of Blood Sugar and of Basal Metabolism Following Injection of Insulin in Nondiabetic Persons. G. Reiter.—p. 605.
Micromethod for Sedimentation of Erythrocytes. H. Reichel.—p. 623.
*Xanthoprotein Reaction in Blood Serum. Lotte Kämmer.—p. 632.
Significance of Fat and Protein for Dietary Treatment of Diabetes Mellitus. J. Schloss.—p. 641.
Available Liver Glycogen in Obesity. K. Paschkis.—p. 654.
Investigations on Carbohydrate Metabolism of Obese Persons: II. Staub-Traugott's Phenomenon in Obese Persons. C. V. Medvei.—p. 662.
Rheumatism: Clinical-Experimental Investigations. Gudzent.—p. 672.
Lactic Acid Content of Blood and Alkali Reserve Following Physical Activity in Exophthalmic Goiter. K. Damblé and A. Reuter.—p. 690.

Xanthoprotein Reaction in Blood Serum.—Kämmer studied the xanthoprotein reaction, devised by Becher, on 120 patients suffering from various disorders. The reaction is based on the presence of aromatic atomic complexes, which, by the addition of concentrated nitric acid, are changed into yellow nitroderivatives. In ten out of sixteen patients with thyrotoxicosis, the xanthoprotein values were considerably increased. There was a certain parallelism between the xanthoprotein values and the basal metabolism. It was also noted that, as the patient's condition improved, the xanthoprotein values decreased. In hypothyroidism the xanthoprotein values were found to be extremely low. Of twenty-seven patients with disturbances of the liver, twelve showed an increase in the xanthoprotein values. It could be demonstrated in two of these cases that an improvement produced a decrease, while an exacerbation caused an increase in the xanthoprotein values. Ten out of twenty-two patients with severe heart disease showed xanthoprotein values above normal. The highest values were detected shortly before death. But there was no parallelism between the xanthoprotein values and the severity of the cardiac disorder. In three cases ending fatally the xanthoprotein values were low. Tests on fifteen patients with gastrointestinal disturbances disclosed in only two a slight increase in the xanthoprotein values. In pulmonary disturbances (pneumonias), the xanthoprotein was increased in six out of eleven cases. The highest values were found in uremia (up to 170 per cent). In the other renal disturbances the values were comparatively low. Increased xanthoprotein values were also noted in patients with cancer, in two patients with blood diseases and in one case of peritoneal tuberculosis.

Zentralblatt für Chirurgie, Leipzig

60: 2705-2736 (Nov. 18) 1933

*Syndrome Complex of Right Half of Abdomen. M. Titone.—p. 2706.
Carcinoma Developing in Gunshot Scar. B. Nimet.—p. 2712.
Use of Camphorated Phenol in Erysipelas and in Suppurating Wounds. W. Gross.—p. 2713.
Palliative Resection in Deep Ulcers of Duodenum. G. Hromada.—p. 2714.
Removal of Appendix in Ileocecal Tuberculosis. F. Mandl.—p. 2716.
All-Sided Traction Splint for Upper Part of Arm. W. Schar.—p. 2717.
Literature of Fatal Pulmonary Embolism After Injections of Sugar Solution into Varicose Veins. F. Remenovsky.—p. 2719.
Calculous Gallbladder Contained in Incarcerated Umbilical Hernia. A. Demian.—p. 2722.

Syndrome Complex of Right Half of Abdomen.—Titone presents the concept of a syndrome complex of the right half of the abdomen as developed by his chief, Prof. Nikola Leotta of the University of Palermo. According to this concept, ulcerative disease of the stomach and duodenum, cholecystitis and appendicitis do not exist as isolated lesions. They are always associated with each other as well as with a complex of anatomic changes of the perivisceral tissues in which inflammation of the appendix is present in 100 per cent of the cases. The constant association of a diseased appendix with peptic ulcer is based on numerous observations made in the course of surgical intervention as well as on histologic studies. This association was emphasized by Pauchet, Moynihan and Paolucci. The interrelationship is not limited to the appendix, the gallbladder and the stomach but involves in varying degrees other organs and gives rise to certain symptom complexes or syndromes. Chronic inflammation of the appendix is believed to be the original lesion, while the various abdominal syndromes develop by the extension of the process along the peritoneal surfaces. Four distinct groups are differentiated on an anatomic basis: (1) a simple syndrome of the right half of the abdomen in which inflammation of the appendix is the predominating lesion, (2) a syndrome in which gastroduodenal ulceration is the principal lesion, (3) a syndrome with cholecystitis or cholelithiasis playing the important part and (4) a group in which a combination of ulcer disease and gallstones exists together with the other lesions mentioned. The chronic peritonitis that has its origin in the disease of the appendix spreads by way of the mesenteries, the omentum, the lymph vessels and the portal vessels. It is responsible for such entities as periduodenitis, Lane's kink and perisigmoiditis. Anatomic and functional lesions of the liver and pancreas likewise exist and furnish an explanation for heretofore obscure symptoms, such as enlargement of the liver, subicteric discoloration of the skin, hyperbilirubinemia and intolerance for fats and carbohydrates, as well as certain hyperglycemias. The diagnosis of the syndrome is made by a careful analysis of the foregoing symptoms and a complete roentgenologic study of the gastro-intestinal tract and of the extrahepatic bile tracts. The author stresses the necessity of a complete exploration at operation made possible by the use of a median incision 15 cm. long, removal of the appendix and of the constricting adhesions, and a proper treatment of the associated lesions.

Hospitalstidende, Copenhagen

76: 1069-1096 (Nov. 2) 1933

*Secondary Pellagra: Seven Cases. A. Hofman-Bang.—p. 1088.

Secondary Pellagra.—Hofman-Bang's cases, all in women, are from a hospital for the insane. No etiologic relation is seen between the patients' psychoses and the pellagra. All patients had had poor appetites, and four of them more or less long-continued diarrhea. Of the three fatal cases, one was diagnosed shortly before death and two after death from the case reports.

Ugeskrift for Læger, Copenhagen

95: 1257-1276 (Nov. 23) 1933

*Treatment of Hematemesis and Melena with Food. E. Meulengracht.—p. 1257.
*Generalized Osteitis Fibrosa (Renal Form): Case. C. Schwensen and T. Eiken.—p. 1259.
Attempt to Measure Color of Skin: Erythemometer for Clinical Use. H. Ehlers.—p. 1264.
Determinations of Metabolism During Treatment with Bergonié's Chair. B. Møller.—p. 1267.
Transportable Delivery Bed for Normal Deliveries. F. Mynster.—p. 1269.

Treatment of Hematemesis and Melena with Food.—Meulengracht advocates abundant purée diet as another well balanced diet in easily digestible and nonirritating form for patients weakened by hematemesis and melena. Of the 119 patients treated by him by this method during the last two years, 5 have died; in the remaining 114 the benzidine reaction of the feces became negative after an average of 10.2 days. Of the seventy-five cases of hematemesis and melena treated by him from 1928 to 1930 with regular ulcer diet with partial inanition, twelve were fatal; in the remaining sixty-three the benzidine test became negative after an average of 12.4 days.

Generalized Osteitis Fibrosa (Renal Form).—In Schwensen and Eiken's patient, a woman aged 36, with symptoms of nephrosclerosis together with colipyuria, vague "rheumatic attacks" appeared after a year and a half. Roentgen examination disclosed a generalized osteitis fibrosa with calcium deposits in the kidneys (renal form). The greatly increased calcium content of the blood and the urine pointed to disease of the parathyroid gland. On exploratory operation an adenoma of unusual size (37 Gm.) was removed. A somewhat threatening postoperative tetany was successfully treated by intravenous injection of solution of calcium chloride. In after-examination one year later the patient was well and fully capable of working.